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Agriculture is a profession and occupation in which a man may spend a lifetime, and at the end of it be able to say, in all sincerity, that he has still got more to learn than he knows. It is only the ignorant who have nothing more to learn.

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The Journal

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

VOL. XIX.

JANUARY, 1915.

No. 1.

BOARD OF MANAGEMENT.

The usual monthly Meeting of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 11 North Parade, Kingston, on Thursday, the 17th December, 1914, at 11.40 a.m. Present: His Excellency Sir Wm. H. Manning, K.C.M.G., C.B. (presiding), Sir Jno. Pringle, K.C.M.G., Hons. L. J. Bertram, C.M.G., D. Campbell, R. P. Simmonds and J. R. Williams, Messrs. P. C. Cork, C.M.G., R. Craig, A. C. L. Martin, Archd. Spooner and the Secretary, John Barclay.

Apologies for absence were intimated from the Hons. Geo. McGrath, and S. S. Stedman, Rev. W. T. Graham and Mr. A. W. Douet.

The Minutes of the previous Meeting having been printed and circulated were taken as read and confirmed.

Matters arising out of previous Minutes:—

(a) *Re S. Manchester and S. St. Elizabeth.*—

Mr. Martin moved the motion he had given notice of at the previous Meeting, as follows:—

“That at the next meeting of the Board of Management, I intend to ask what steps, if any, have been taken by the Government for the carrying out of the recommendations made by the Committees appointed by the Board to report on the conditions in South Manchester and South-East St. Elizabeth on Neglected Juveniles and on Praedial Larceny. If not, what is the intention of the Government with regard to these recommendations?”

Mr. Martin spoke on the subject to the effect that he was disappointed that so little appeared to have been done with regard to the recommendations of the Special Committee which was appointed to enquire into the conditions existing in S. Manchester and S. St. Elizabeth, and which had sent in a full Report to the Government. He thought that steps would have been taken to give some practical assistance to the people in S. Manchester where, owing to successive years of drought, most of the coffee trees would die out within the next few years, and coffee was once their staple crop; pimento which the people in the district depended upon too, had failed them this year; praedial larceny was still rampant; nothing also had been done apparently with regard to the recommendations of the Special Committee appointed on Neglected Juveniles.

The Governor in reply said that something had been done: an Experiment Farm had been started at Lititz Savannah, which was on the borders of S. Manchester and S. St. Elizabeth; boring operations for water were going on there, but the apparatus was very inefficient, while owing to the war they could not at present afford a good drilling machine; they had to bore through solid limestone rock, they were down 79ft. and yet had not struck water, but the hydraulic engineer was still confident that they would strike it. Crops had been planted

and were being planted at the Farm, but the long drought had been a great drawback, of course. A home for Neglected Juveniles in these districts had been started by the Chairman of the St. Elizabeth Parochial Board, the late Mr. J. M. Farquharson, as an experiment, and was being conducted very economically and successfully. With regard to Praedial Larceny a mass of recommendations had been sent in, but most of them were quite impracticable for the Government to adopt. Flogging had been a very general recommendation, but at present under the Law the Resident Magistrates could order flogging if they chose, but few ever did so; if Resident Magistrates were personally against flogging they could not be forced to order it.

Mr. Cork said that flogging had been tried for 20 or 30 years ago here and had been a failure.

Mr. Simmonds suggested that the Government should get the experience of Trinidad where flogging had been tried.

Mr. Martin said that they ought to have some strict Apprenticeship Law so that young lads could be bound to an employer for a term of say 3 or 4 years: at present when employed, these lads went off just as they had learned a little and were beginning to be useful; the result was they never received a thorough training.

Mr. Cork said the very idea of an Apprenticeship Law here, would be opposed as it would savour to the people of slavery.

The Governor said some advance had been made in dealing with Praedial Larceny in the Law appointing "Authorized Persons," and this ought to help considerably.

The Secretary said in this connection he was still receiving a good many complaints of the treatment meted out to "Authorized Persons" which certainly was a severe check to their activities. It seemed that there was still considerable hostility towards the "Authorized Persons" by the regular Police and District Constables, while Clerks of the Courts and even Magistrates quibbled over the small distinction between Larceny and Praedial Larceny—although the Law seemed quite clear—and over the fees to be paid to "Authorized Persons." If the distinction between Larceny and Praedial Larceny as regards agricultural produce could be abolished, it would help matters considerably.

The Governor said that the Attorney General had had this matter under consideration and a revision of the Law on this point would be submitted to the Government.

(b) *Panama Disease of Bananas*.—The Secretary read the following letter from the C. S. O.:—

No. 16229-19013.

11th December, 1914.

"With reference to previous correspondence on the subject, I am directed by the Governor to inform you that the Director of Agriculture has reported, under date the 8th Current, that the Microbiologist has now examined further samples of bulb and stem of diseased bananas from "Endeavour" in Portland, and confirms the disease to be "Panama Disease," and that the Field Inspector completed the treatment last week and has been making an inspection of the district since.

2. The Director also reports that a single plant on the line of the diseased area treated at Caenwood in 1912, has been found to be affected with disease and that treatment is now being carried out by his Department."

(Sgd.) H. BRYAN,
Colonial Secretary.

The Secretary also submitted a Memorandum from Mr. Cradwick stating that the people in the district of Endeavour should be notified that cases of Panama Disease had been found there, warning them

not to take suckers from that neighbourhood and also to be careful where their labour came from, and that any outside labour should have their tools properly disinfected.

The Governor asked the Secretary to notify him to this effect.

(c) *War Gifts*.—The Secretary said that he had received a report that the first shipment of 244 packages of Oranges and Grapefruit shipped on the 9th November had arrived in good condition and had been distributed by the West India Committee of London. On Sunday, the 22nd of November, he had shipped 959 packages of Oranges and Grapefruit by the Elders & Fyffes steamer "Arracataca" to Bristol. A list of those who had supplied the fruit had been published in the Newspapers but there had been some omissions in it, but he would also publish a revised list in the JOURNAL. He had estimated that 1,000 boxes could be sent for £100; the total outlay had been £70 15s. 2½d. He had also a letter forwarded to him from the C.S.O., from the Vegetable Products Committee of London, asking if Jamaica could supply fruit and preserves to the North Sea Fleet. He had replied that we could ship Oranges and Grapefruit, also Bananas if they could be taken, and probably also Guava Jelly, which was a Jamaica speciality. The difficulty with the Guava Jelly, however, would be the jars: unless it was shipped in proper jars with screw tops and rubber bands, it would not carry well. He could get housewives to supply the Guava Jelly free, but they would require to be supplied with the jars. He had written the Government, however, stating that he had nineteen dozen 1½ and 2lb. jars, in the charge of the Permanent Exhibitions Committee, which that Committee would hand over if the Government authorized it; he had not heard yet in reply. The jars cost about £7, and the Exhibitions Committee would not require them again as they would have a balance to the credit of the Toronto Exhibition this year.

(d) *Resolution re Sugar*.—The Secretary said he had submitted to the Staple and Minor Products Committee as directed at the last Meeting, the matter of this Society sending forward a resolution to the Government here to be sent to the Home Government, *re* the Colonial preference for sugar. The papers had just been returned from circulation but he had not been able to get a Meeting yet, to frame the Report. He was directed to circulate the papers again for the Committee to frame a report.

(e) *Cassava Sticks for Dallas and Constitution Hill Branch*.—The Secretary said that a grant of £3 had been made to introduce new varieties of cassava in the Dallas and Constitution Hill Districts, suitable for the conditions there, as owing to the long continued years of drought, their usual crops were a failure. He had reported at the last Meeting that these sticks had not yet arrived although 14 days on the way, but they had come to hand on the afternoon of the Meeting in good order and had been duly forwarded to the districts. From the grant of £3, he had only spent £1 18s. 3d., and he now asked whether he could make up the balance in vegetable seeds or whether he must send more cassava sticks. He was directed to supply more cassava sticks if the district wanted them.

The following letters from the C. S. O. were submitted:—

(a) *Re Foot and Mouth Disease*.—

No. 15505-18221/14.

27th November, 1914.

"I am directed by the Governor to transmit for your information, the accompanying copy of a telegram which has been received from His Majesty's Ambassador at

Washington, relative to an outbreak of Foot and Mouth Disease in the United States of America, and to inform you that steps will be taken at an early date by an Order in Privy Council, under Law 24 of 1890, to prohibit the landing in Jamaica of cattle, animals, fodder and litter brought from that country."

(Sgd.) H. BRYAN,
Colonial Secretary.

TELEGRAM.

*From British Ambassador, Washington, to His Excellency the Governor.
Jamaica.*

24-11.14.

In answer to your telegram of 21st November, Outbreak of Foot and Mouth Disease is stated to be worst in the history of the country; quarantine imposed on fifteen States. Great Britain has prohibited importation of hay and straw; and Bermuda of cattle and pigs, from whole United States. Most stringent measures have been taken to prevent spread. I should advise precautions in Jamaica.

No. 15796-18221/14.

3rd December, 1914.

"In continuation of the letter from this Office, No. 15504-18221 dated the 27th ultimo, I am directed by the Governor to inform you that, in consequence of the outbreak of Foot and Mouth Disease in the United States of America, His Excellency in Privy Council on the 1st instant made an Order, under Section 6 of Law 24 of 1890, prohibiting, as from the 1st December, 1914, and until further orders, the landing in Jamaica of cattle, animals, fodder and litter, as defined in Law 24 of 1890 and Law 1 of 1898, brought from the United States of America. The Order was published in a Gazette Extraordinary dated the 1st. December."

(Sgd.) H. BRYAN,
Colonial Secretary.

Mr. Craig said that there existed in Jamaica a local disease commonly called Foot and Mouth Disease affecting horsekind, which was not of course the real Foot and Mouth Disease, but it was contagious, and sometimes it caused a good deal of loss in some districts. In his parish, there had been some cases, and he had asked the Inspector of Police to advise the Director of Agriculture asking for the attendance of the Government Veterinary Surgeon. The reply was, that the disease was not scheduled under the Diseases of Animals Law, and if the owner of the animals desired the services of the Veterinary Surgeon of the Department, a fee of £1 per diem and travelling expenses was payable. Mr. Craig said the Law simply said Foot and Mouth Disease, and this was a Foot and Mouth Disease, and contagious. He thought the Government Veterinary Surgeon was appointed to prevent the spread of Contagious Diseases. There were no commissioners appointed under the Law so the Inspector of Police had to take the matter in hand.

Mr. Martin quoted a case where cattle had been dying in numbers on a pen and the Veterinary Surgeon was asked to come to investigate; the reply was that unless he could certify that the disease came under the Law the Veterinary Surgeon could only go if the fees were paid. Now this was a case where it was not only the owner of the infected cattle but others around anxious to prevent the spread of a disease. How could he or any penkeeper certify what the disease was?

The Secretary was instructed to put the matter on the Agenda for discussion in the following month.

(b) *Employment of Lads discharged from Reformatory.*—

No. 16320-5825.

14th December, 1914.

"I am directed by the Governor to inform you that, as the result of a consideration of a report by the Board of Visitors, Reformatory Branch, Saint Catherine District Prison, the Inspector General of Prisons has submitted a proposal to invoke the aid of the Jamaica Agricultural Society towards helping the lads on discharge from that Institution to earn an honest livelihood, and I am to say that His Excellency will be obliged if the Society will be so good as to consider this proposal and communicate the results of their deliberations, for submission to His Excellency."

(Sgd.) H. BRYAN,
Colonial Secretary.

This matter was referred to the Staple and Minor Products Committee.

Arrests by "Authorized Persons."—Letter from the Inspector-General of Police was submitted, forwarding a Return of the arrests made by "Authorized Persons" under the Praedial Larceny Law, during the quarter ended 30th September, 1914, as printed on page 7.

Crown Lands.—The Secretary said he had been asked by several Secretaries of Branch Societies to print in the JOURNAL the Government Rules and Regulations with regard to the purchase of Crown Lands published in the Gazette for the information of members; they were rather long and he asked the authority of the Board first.

Mr. Craig said that the Rules and Regulations seemed to be very incomplete, and in some cases drastic, so that no small settler could be advised to take up lands under the conditions. He would suggest that a small Special Committee of the Board be appointed to go into the whole matter.

The Governor said these Regulations were not like the Laws of the Medes and Persians, and he thought the Government would be quite open for suggestions regarding them.

A Special Committee consisting of Hons. S. S. Stedman, R. P. Simmonds, Messrs. A. C. L. Martin was appointed with Mr. Craig as Chairman.

Toronto Exhibition.—The Secretary said that he had had a good many enquiries for products as a result of the representation of Jamaica at the Toronto Exhibition, and he submitted a list that Mr. Clemens had sent in: he did not ordinarily put these matters before the Board, but simply attended to them as well as he could, but there was a movement to give a small subsidy to Mr. Clemens as the agent for Jamaica in Toronto, and he thought it right that some of his work in this connection should be known.

Co-Operation, Loan Banks and the Society.—The Secretary said that he had submitted to the Instructors Committee some remarks from the Chairman of the Agricultural Loan Societies Board. The Chairman (Mr. Anderson) stated it was a matter of regret that the Society did not take more practical interest in the work of the Loan Banks and in assisting settlers to get better prices for their products. There were some minutes from some members of the Instructors Committee on the subject which he read. The matter of this Society's connection with Loan Banks had been considered over and over again. Most of the Loan Banks were grafted on the Branch Societies. They were kept quite distinct but they often consisted largely of the same members and sometimes much the same Committees, but it had been thought better for the Instructors not to become members of these Committees or to be officially connected with the Loan Banks in any way; they were still, however, to give their advice and help unofficially in any difficulties. As regards the marketing of produce this was a big subject and had to be gone carefully about.

Mr. Campbell said he thought that something should be done now as regards securing more uniformity in the quality of produce marketed by small settlers: co-operation and combination could do a lot in this direction. He thought that through the establishment of central factories we might secure the end aimed at.

A Special Committee consisting of Mr. Campbell, Mr. Cork, Mr. Bertram, Mr. Martin and Mr. Arnett, Agricultural Instructor, was appointed to consider the matter, with Mr. Campbell as Chairman.

Lectures by Microbiologist.—Letter from the Hon. H. E. Cork was read complaining that the Microbiologist had in some cases, fixed most unsuitable days for planters, for his lectures on coconut diseases. This was tabled.

Prize Holdings Competition.—The Secretary submitted a letter from Mr. Arnett stating that owing to the prolonged drought in St. Ann, the people were 3 months behind with their work, and that those who were willing to enter for the Competition had asked for the judging to be postponed for 3 months. Mr. Cradwick also asked, for the same reason, that the judging in St. Mary be postponed for 2 months. The Secretary said it would be better if the judging could be postponed, as this would make the Competition more effective. The only drawback was that he would have to carry the awards over until next financial year, and this would make some difference in the figures as to the finances which he had put forward at the previous Meeting.

The postponement was authorized as desired.

Journal Committee re Journal.—The Secretary said that the Office Committee had made a recommendation to the JOURNAL Committee to enquire whether the Government Printing Office could not print the JOURNAL on more favourable terms than private printers. He had received an estimate from the Government Printing Office, but it was higher than the contract figure with private printers. There were reasons why private printers could do this work to better advantage than the Government Printing Office—it brought them other trade in printing in connection with Shows, planters work, and so on. Again, the Government Printing Office had not the type for display advertisements and would require to get this; no advertiser would be satisfied with the same type right through. The matter was left to the JOURNAL Committee.

Half Yearly Meeting.—The Secretary said that the Half-Yearly General Meeting fell on Thursday, the 21st January, and he asked whether the same arrangements as at the previous meeting would hold good, i.e., the Board would meet on the Wednesday afternoon and the Instructors Committee at 10 a.m. on Thursday and the Half-Yearly General Meeting at 11.40 a.m. on the same day. Agreed.

Instructors.—The Instructors Reports and Itineraries were submitted and directed to be circulated to the Instructors Committee as usual.

Statements of Accounts.—Statement of Accounts was submitted and tabled.

New Members.—The following new members were elected:—

A. Beckman, Bushy Park; Manuel Espinosa, Apartado 116, Panama; George Kent, Morne Fendue, St. Patricks, Grenada, B.W.I. Aubrey Streat, Castle Hill Estate, St. Marks, Grenada, B.W.I.; Dr. Henry Strachan, C.M.G., Teak Pen, Chapelton. Thos. Anderson, Weir Pen, Mile Gully P.O.

The meeting adjourned until Wednesday afternoon 20th January at 8.15 o'clock, the usual day Thursday being occupied by the Half Yearly General Meeting.

JAMAICA AGRICULTURAL SOCIETY.

RETURN OF ARRESTS MADE BY "AUTHORIZED PERSONS" UNDER THE PRADIAL ARGENCY LAW, DURING THE QUARTER ENDED THE 30TH SEPT., 1914.

Parish	Names of "Authorized Persons" who prosecuted.	Name of Defendant.	Offence for which prosecuted.	Remarks.
Kingston	George Rennie	Albert Robinson	Unlawful possession of cocoanuts	Nil
St. Andrew	William Forteous	William Brown	" " "	Nil
St. Thomas	William Barrett	Thomas Wright	" " "	14 days H. L. Lock-up.
"	Oscar Lowe	Isaac Jackson	Unlawful possession of Guinea gras	Discharged
Portland	Elias Davis	Zachariah Grant	" " "	Discharged
"	Oscar Lowe	Charles Robinson	" " "	Discharged
"	Harold Patterson	Nathaniel Moore	" " "	Discharged
St. Mary	Ezekiel Brown	John Henry	" " "	7 days H. L.
"	Daniel Hughes	Buahul (Coolie)	" " "	30 days H. L. D. P.
"	Robert Hird	Thaddeus Wright	" " "	Discharged
"	Amos D. McFarlane	Edward Nugent	" " "	Reprimanded and discharged
"	William Wood	Nehemiah Patterson	" " "	Discharged
"	Jeremiah Gordon	Elizabeth Edwards	" " "	Discharged
"	Jeremiah Gordon	John Bryan	" " "	3 months H. L. G. P.
"	Jeremiah Gordon	Richard Stanbury	" " "	Discharged
"	Rufus Linton	Theophilus Ferron	" " "	6 weeks H. L. D. P.
"	Frank W. Geobaghan	Jane McDermott	" " "	7 days H. L. G. P.
"	Jeremiah Russell	Jasper McKenzie	" " "	3 months H. L. D. P.
St. Ann	Joseph Dixon	Joseph James	" " "	7 days H. L. Lock-up
Trelawny	Nil	Nil	" " "	Nil
St. James	Joseph Dixon	Eleanor Donaldson	Unlawful possession of Bananas	6 weeks H. L. G. P.
Manover	Nil	Nil	" " "	Nil
Westmoreland	Nil	Nil	" " "	Nil
St. Elizabeth	Nil	Nil	" " "	Nil
Manchester	Nil	Nil	" " "	Nil
Clarendon	Standford Henry	Ernest Miller	Larceny of growing yams	12 strokes with a rod of tam-arind switches
St. Catherine	Nil	Nil	" " "	Nil

Inspector General's Office, Kingston, 27th November, 1914.

A. E. KERSHAW, Lt.-Col., Inspector General of Police.

COCOA DISEASES.

POD ROT AND CANKER.

(By S. F. Ashby, Microbiologist.)

Pods in all stages of development are attacked. A brown rot starts as a rule, from the stem or flower end and rapidly advances up and down the pod. On the surface the brown area is sharply separated from the normal part, but internally in the wall of the pod the separation is not clear. Later the pod shrivels, turns black and hardens. In the brown stage a grey down may be seen just behind the advancing edge of the rot due to the colourless spores of the fungus borne on long delicate branches. As the pods shrivel and blacken, snow white mould and pink spots develop, due to other fungi living in the tissues killed by the real parasite, a *Phytophthora*. This fungus can gain entrance through the uninjured skin of the pod. If the pod attacked is immature enough for the beans to be still in contact with the wall the fungus enters and kills them; if the beans have drawn away from the wall they avoid attack and may be suitable for curing. The rot which advances from the flower end often enters the stalk and then the bark of the limb where it extends up and down, colouring the bark wine purple and causing the so-called canker. A large amount of canker starts from the cushions in this way being due to the rot passing through the pod stalks into the bark. The fungus is spread mainly from diseased pods, on which the spores form in great numbers, by means of wind, rain and insects. In infested plantations the trees will have diseased pods in one spot or another hanging through out the year each being a centre for the spread of disease. The disease is worst in wet seasons and in damp localities especially where there is poor ventilation and much shading. The fungus forms thick resting spores on and in the pods; then gets washed into the soil or mixed with it in rotting husks and become an additional source of infection. The pod rot and canker can be completely controlled by systematic spraying with 'bordeaux mixture' which should be regarded as one of the regular necessary operations in good management. Collecting and burning diseased pods except in small cultivations does not pay for itself. Trees generally set more pods than they can mature so that some on each cushion shrivel and fall at a very early stage. A serious number of these surviving young pods which the trees could mature are attacked by the rot and lost so that the crop is always short from that cause. Spraying soon after the maximum amount of fruit has set saves these young pods and secures a full crop. The grown maturing pods are equally preserved so that the proportion of 'black' cocoa picked is greatly reduced, and still further gain. It would probably pay to spray four times a year when the largest number of young pods are present. With an Alpha and large Holder Knapsack outfit one man can spray 100 trees a day and give a gallon to each. The cost of spraying 1,000 trees in labour and chemicals would not exceed £2 as a maximum and could, no doubt, be done for 30/-. Two sprayings in September, in Trinidad, at an interval of two weeks on blocks of 500 trees, compared with a like number unsprayed, yielded on two estates a net profit of £9 and £4 per 1,000 trees during the following year. As most canker patches start from the pod, spraying greatly diminishes it by preventing fresh infection. Where already present, excision

must be practised in addition. The best way to locate canker is by the black nature of the $\frac{3}{4}$ grown pods at picking time. If canker has reached the cushion the places should be marked by paint or lime so that excision may be performed as soon as work is slack. The reddish or purple bark should be entirely cut away without injuring the wood (as the fungus is confined to the bark), and the edges trimmed smooth, and the wound covered by hot coal tar. Mr. J. B. Rorer has made a thorough investigation of this disease in Trinidad and has proved conclusively that both pod rot and canker are due to the fungus—*Phytophthora faberi* (Maubl). I have examined the fungus from the rotting pods in Jamaica and find it to agree, both on the tissues and in pure culture, with the species described by him. The tissues rotted by this fungus are very quickly invaded by a number of other fungi of which *Colletotrichum Cradwickii* (Bancroft) is most conspicuous here; these successors of the *Phytophthora* have misled several investigators of canker, who falsely concluded that one or another of them was the primary cause of disease. I have recently examined two cases of diseased cocoa branches showing both the conidial and perfect fruits of the fungus, *Sphaerostilbe musarum*, which causes the Bonnygate Disease of bananas. The branches bore the purple canker patches due to the *Phytophthora* and both these places and the normally coloured bark tissues, well beyond them, was penetrated by the black bordered rhizomorphs of the *Sphaerostilbe*. Both samples were from cocoa growing among bananas attacked by the disease so that spores from the latter were carried to the cocoa pods, probably starting attack on the canker spots but also spreading in the bark beyond them. This finding supports the suggestion made in the description of Bonnygate disease that the fungus came originally from a woody plant. The following paragraphs are from Rorer's paper (Bull. Dept. Agr., Trinidad No. 65, July 1910.) When the tissues of the pod at the stem end have become well invaded by the fungus the mycelium runs back into the cushion either through the bark or the central woody cylinder of the stem of the pod. If it has gained entrance to the tree through the thin bark layer of the pod stem it generally spreads out in all directions so that the whole cushion and surrounding area of the bark becomes cankered; but on the other hand if the mycelium grows into the tree through the woody part of the pod stem the cushion may not become cankered. The mycelium will extend in narrow lines for some distance up or down the stem in the cambium layer, but sooner or later will grow outward into the bark and then spread out rapidly forming larger cankered areas. As the tissues of both pod and bark are killed by the advancing margin of growth of the *Phytophthora* mycelium they are quickly invaded by a number of rapidly growing fungi, as mentioned above which produce spores very quickly on the diseased tissue. There can be no question that these fungi aid in the rapid disintegration of the already diseased pod tissues and are responsible to a certain extent for the characteristic appearances of cankered bark, but that they are not parasitic and cannot even attack tissues which have been wounded mechanically, has been proved by a larger number of inoculation experiments. A large number of inoculation experiments, made by the writer with pure cultures of *Phytophthora*, proves conclusively that this fungus is the cause of the common cacao podrot and of the disease known as canker, and that the diseased pods serve as the chief source of infection of the tree.

PREVENTIVE MEASURES.

"To control the pod disease two methods have generally been recommended. One is, to gather and destroy all pods as soon as disease is noticed on them, and to husk 'black cocoa' apart from the sound, and to burn, bury or lime all the husks; the other is, to prevent disease by spraying. Methods similar to the first have been frequently recommended for the control of a large number of fruit diseases, but from the fact that it is impossible to gather and destroy all the fruits, of whatever kind, as soon as they become diseased and that the fungi causing disease of this type produce spores within a very short period from the time of the first infection, the method is of a theoretic rather than a practical value. It has long since been given up as a means of controlling such diseases as brown rot of the peach, bitter rot of apple, black rot of the grape and other fruit diseases. Moreover a number of Trinidad planters who have tried this method as a means of controlling the cacao pod rot have told the writer that though the disease was reduced to a certain extent the cost of the labour used in collecting and destroying the blackened pods was in no way compensated for by the increased return from the general pickings, so that they gave up the method after a short trial. When the fact is considered that in the rainy season a pod may become infected and completely rotted within a week or ten days and that within three or four days from the time of infection hundreds of thousands of spores are produced, each one of which in germinating liberates from 10 to 30 smaller spores, each capable of reproducing the disease, it can be readily understood how futile it is to attempt to check the disease by gathering and destroying the diseased pods. The method of control by spraying, which has proved so successful in combating similar diseases in temperate climates, is undoubtedly the best to use against pod rot. Although a sufficiently large number of experiments have been carried out, either in Trinidad or elsewhere to make it possible to give the best recommendations as regards to time of spraying, mixtures to use, etc., yet the work which has already been done shows conclusively that the disease can be controlled by spraying, at a reasonable cost, that is at a cost which is more than compensated for by the increased yield. Up to the present time the writer has definite results from two sets of experiments. During the past eight months 2,125 more sound pods have been picked from 500 sprayed trees, than from 500 adjacent unsprayed trees, and the sprayed trees have yielded in total 1,608 more pods. Twenty-five per cent. of the cacao from the unsprayed trees has been 'black', while only 9 per cent. of that from the sprayed trees has been so. At some future time perhaps when estates are perfectly drained and cacao is grown without shade much less disease will be met with, but until that time comes, both canker and podrot must be controlled by spraying.

DIEBACK.

"In this disease, the younger twigs begin to die and shed their leaves, and a grey brown rot advances in the bark and outer wood down into the branches and the trunk, finally killing the tree. This rot, which is dry and fibrous in the older parts causing the bark to separate easily from the wood, is due to a fungus—*Lasiodiplodia*, which is common on dead wood and pod shells in cocoa walks. The fruiting berries burst through the bark as black pustules and discharges great numbers of large oval pores at first colourless, later brown, with

a dark line across the middle, when the disease reaches a cushion bearing pod the fungus grows through the stalks into the walls and cavities of the pods, forming a white growth over the beans and a brown rot of the pod advancing to the flower end. The pods later becomes hard, shrivelled and black and bear the fruiting pustules of the fungus. The treatment consists in prompt pruning away of the diseased twigs and limbs and burning them. The pruning must be done well in advance of the discoloured bark, or fungus may be left to continue the rot. The larger cut surfaces should be treated with coal tar. The trees appear 'stag headed' in this disease, a condition which can also be caused by poverty of soil, wind, drought or root disease. In these cases if twigs are cut lengthwise, the dead brown bark is found to cease sharply against the living; in dieback-disease the transition from dead to living is gradual. Trees in well drained, weeded and mulched soils resist this disease which is a sign of neglect.

ROOT DISEASE.

"This is caused by the same fungus rotting the roots especially in ill drained or heavy soils. The leaves become sickly, begin to die from the margins and finally fall away and young pods fall or cease to develop. The disease often shows at isolated points in a plantation. The attacked trees should be felled and a trench dug around them about 2 feet deep and 16 inches wide at a distance of 9 feet throwing the soil inwards. This measure is carried out to prevent possible spread through the soil. Attention to drainage and forking should be given over the whole plantation.

THRIPS.

"The leaves and pods frequently suffer rather severely from attacks of these insects especially in dry weather. The leaves show brown patches and strips following the midribs and main veins while the pod becomes russetted. The species in question (*Heliothrips rubro-cinctus*) is easily recognized in the larval and pupal stages by the presence of a broad red cross band on the otherwise yellow body. The larvae move about freely on the undersides of the leaves puncturing the tissues with their beaks and sucking out the sap while the pupae collect in small colonies and do not move. The adult insect is black with fringed wings. All stages may be found on the undersides of the leaves and the characteristic way in which the larvae and the adults move about with the tail end raised and supporting a large drop of the dark liquid excreta can be seen easily. If the insects are not found, attack can be inferred from the brown strips and the small dark patches of the dry excreta scattered over the undersides of the leaves and pods. If marked injury is being done the leaves and pods should be sprayed with an insectide, such as kerosine emulsion, the ingredients of which are cheap and easily obtained. The spray must be applied with force at close quarters from the finest nozzle and care taken to cover the undersides of the leaves. The works should be done in still air and all parts of the trees covered but the spray should not be applied too long at one place as large drops may form, run down the trunk and injure the surface roots. It should be repeated two weeks later to deal with the next brood as the eggs are not all killed by the spray.

THE JOURNAL OF THE BURGUNDY MIXTURE.

The following extract is from the *New South Wales Agricultural Gazette*:—

“Experience in some parts of Ireland has shown the superiority of Burgundy Mixture, in which washing soda replaces the lime, and the following extracts are taken from a leaflet published by the Department of Agriculture and Technical Instruction for Ireland:—

Tests spread over five years in that Department’s Agricultural Stations showed, that while the use of Bordeaux mixture gave an average increase of 34 cwt. per acre over the unsprayed plot, the use of Burgundy resulted in an increase of 50 cwt., and in each of the five years the Burgundy was the more effective, while in other cases the balance has been slightly in favour of Bordeaux.

METHOD OF PREPARATION.

Burgundy mixture is made in the following proportions:—

2 lbs. sulphate of copper of 98 per cent. purity.

2½ lbs. washing soda of 98 per cent. purity.

10 gallons clean water.

In many cases farmers use a barrel of 40 gallons capacity for preparing the mixture. For this amount four times the above quantities will be required, viz:—

8 lbs. sulphate of copper.

10 lbs. washing soda

40 gallons of water.

The preparation of the mixture should be set about in the following manner:—

Thoroughly wash the barrel and pour into it 35 gallons of clean water. The 8 lbs. of sulphate of copper should then be put into a canvas bag or tied up in a piece of canvas cloth, and put into and moved about in the water in the barrel until the crystals are dissolved. This operation can be more quickly accomplished if the crystals of copper sulphate have been previously ground.

Having prepared the solution of sulphate of copper, next dissolve the 10 lbs. of washing soda in 5 gallons of water in a separate vessel. Then pour the washing soda solution slowly into the copper sulphate solution in the barrel, stirring continuously. The mixture should then be ready for use.”

(Bordeaux mixture is troublesome to make and unless the right kind of lime is used—temper lime, which is not easy to get—it is not of full value, perhaps of little value for the purpose for which it is intended. If the making is left to servants it is very much a delusion and a snare to call the result Bordeaux mixture. So the owner is compelled either to make the mixture himself or to stand over the servants and watch while they do it. We are asked whether there is not a made-up mixture which can be purchased, so that all required is to add water. We see that in Ireland and New South Wales, as well as in France, where Bordeaux mixture originated, there is too what is usually called Burgundy mixture which has the same effect apparently as the Bordeaux mixture, if not slightly better, and it is much easier and simpler to make.

We asked the Microbiologist for his opinion on this as several correspondents have asked whether Burgundy Mixture was not cheaper,

and better and easier to make than Bordeaux Mixture. It may seem curious in a country of limestone formation, but it is a most difficult thing to get Temper Lime, and slaked lime is not of much use for making Bordeaux Mixture.

Servants cannot be trusted to make these mixtures and what planters are asking for is a ready-made mixture which will only require the addition of water. There are plenty of such preparations on the market and experiments might be carried through to prove their relative efficiency and cost. Bordeaux or Burgundy Mixture which is a fungicide can also be made an insecticide by the addition of Paris Green or Arsenate of Soda. But we feel sure that most planters would rather buy a ready-made proprietary mixture of proved efficiency if it could be got at a reasonable price. This we can now get either in paste or powder form.)—ED.

DEPARTMENT OF AGRICULTURE, JAMAICA.

I return, herewith, your extract about making Burgundy mixture. It is more expensive than Bordeaux mixture; for the latter 5 lbs. bluestone are sufficient for 50 gallons, but the burgundy requires more than half as much again. Washing soda is more expensive than lime, pound for pound, and it requires three times as much to make 50 gallons.

The Burgundy may be preferred on delicate foliage, but it has weak sticking power and could not resist a tropical rain. It takes as much trouble to prepare as Bordeaux.

It may be used as a more expensive and less effective substitute for Bordeaux where it is impossible to obtain recently burnt quicklime. For garden plants with delicate foliage it might prove useful as the materials are easily got, but Bordeaux has many advantages for spraying on an agricultural scale.

S. F. ASHBY,
Microbiologist.

ONIONS.

(BEING A PAPER READ ON "ONION GROWING IN VERE"—NOVEMBER 5TH, 1914, BEFORE THE VERE BRANCH OF THE JAMAICA AGRICULTURAL SOCIETY BY MR. ARCHIBALD SPOONER.)

The Onion plant is a native of the southern part of the north temperate zone, where it is to-day largely grown, consumed, and exported, but it has been introduced and modified by cultivation in the northern parts of the temperate zone so as to bear crops of onions of a smaller kind more suited to growth in a colder climate than its natural home. In the tropics the onion is grown under more or less unnatural conditions, so much so, that the writer knows of no true onion that will bear seed in the tropics, and of only one or two varieties that will produce a true and well formed bulb. The seed that produces onions of better quality and shape than any other under tropical conditions is generally admitted to be the so-called "Bermuda" onion. The name given to this onion is only on account of its having been largely grown in Bermuda for export to the United States. The seed from which these onions are raised is not grown in Bermuda, but comes from the Canary Islands, which are situated off the north-west coast of Africa in latitude about 28 North. This appears to be about the most southerly point, north of the equator, at which onions produce seed, and this no doubt accounts for the onions growing well in tropical climates, where the conditions as to soil and rainfall are favourable. It is important, then, to get good fresh seed from the Canary Islands, especially as onion seed loses its power of germination very quickly in the tropics. The onions in the Canary Islands apparently produce seed about the end of July or beginning of August, so that it is

possible to get fresh seed in the West Indies before the middle of September. The importance of obtaining seed early is very great where the export of onions to the markets of the United States is concerned. The great point in shipping onions to this large market, is to get them into the market before the growers of Bermuda, Texas, Cuba and other places get in their onions, all of which are raised from the same Canary Island seed obtained at the same time, with suitable soil and rainfall conditions it may be said that the warmer the climate the faster the onions will grow, and therefore the lowland areas of Jamaica have a good chance of competing for the early New York Market. Onions here generally take 170 days between the date of sowing and the date of harvesting, so that seeds sown on say September 15th, will give onions to harvest at the end of February to the first week in March. As a rule, the New York Market will be pretty bare of supplies of Bermuda onions at this time, and so a large demand is often found, and good prices are obtained. Towards the end of March to the end of May, enormous quantities of these onions come into the New York Market, from Texas especially, and much lower prices result. If you grow onions for export therefore, grow them early. Texas onions are grown in the arid district on the Mexican border and raised entirely by means of irrigation from the Rio Grande.

Now as to the land.—In the tropics Bermuda onions will grow on any kind of land as long as it is well drained, the only difference between good land and poor land will be that the onions will be smaller and harder on poor land and larger and softer on rich land. Too much rain also makes a larger and softer and less saleable onion. Too little rain makes very small hard onions, the same as would be produced by the right amount of rain on poor land. New York wants large Bermuda onions so that it is best to choose fairly rich land for growing them on. In the tropics it is not a good plan to manure land for onions, the manure makes the land too open, and the onions, even if they grow well, will be too sappy and thick necked and of bad keeping quality and unsaleable shape. Of course, I refer to pen manure; on poor land the use of Sulphate of Ammonia may help onions along if used in small quantities. In cold countries onions are liberally manured, no doubt to render the soil warmer, but this is not necessary in Vere, we get all the warmth we want naturally. The best land for onions is a loamy soil inclined to be silty or sandy rather than clayey although on well tilled well drained clay loams excellent onions can still be produced especially if the soil contains a high percentage of lime and becomes friable on top when it dries. A clay soil that cakes quite hard on top whilst it remains wet and soapy just underneath is no good for onions. Such a soil would have to be thoroughly drained and treated with crops of Cowpeas and heavily limed or treated with sand before it would do well in onions. The general plan of procedure in sowing onions would be as follows:—

About the beginning of August choose a nice piece of loamy land, sandy rather than clayey and near to a pond or well. Avoid if possible land covered with leaf-mould because this would not be compact enough for a seed bed. A piece that has no cocoa grass on it is preferable, and almost essential as cocoa grass is the worst weed on an onion seed bed and cannot be eradicated without damage being done to the young seedlings. I have found that where Guinea Grass has been growing thickly cocoa grass will generally be absent, so a good seed bed can be made out of a piece of land where Guinea Grass has been growing well.

Dig up the land with a hoe about 4 or 5 inches deep and cradicate all the weeds. Work over the land with a hoe about once a week, getting the surface into very fine tilth, but do not go deeper with the hoe than about 2 or 3 inches. As long as you have about one and a half inches of well tilled clean soil on top at the time of sowing the seed this is all that is wanted, for onions like a firm seed bed underneath, not a loose open one. In preparing the land all sticks, trash, dead grass, etc., must be carefully removed, the land should be quite free of anything that would prevent the soil compacting before the seed is sown.

About the beginning of September mark out the land into beds about 3 feet wide leaving paths between the beds, but do not raise the beds more than 2 or 3 inches above the level of the paths, in fact let the path act as surface drains without making the edges of the beds too dry. The young onions can then be weeded by standing on the paths without treading on the rows. If the land is dry you must then begin to water it with a watering can provided with a rose, so as to compact it and to cause all the weed seeds to germinate, in fact it should be watered almost every day for about a fortnight before the onion seed is sown, and also be kept quite free from weeds. The rows for planting out the onions should be opened along the beds just before sowing the seed. The best way to do this is by a string and pegs; the string being stretched along the beds and the rows marked off with a pointed stick held against the string. It will be little use putting the first row of seed closer than 6 inches from the edge of the path as the soil there would be too loose and dry and the

onions would only dry off and die. You can get 5 rows of onions 6 inches apart on a 3 feet wide bed and the beds can be made any length you like. A central path down the middle of the seed bed plot is useful for carrying water or for holding water casks which can be filled by a pump placed in a well or pond close by, if this can be arranged. The rows should be marked out about three quarters of an inch deep and 6 inches apart. The seed should be sown at the rate of about 90 seeds to the running foot of row. One ounce of seed contains about 9,300 seeds, so that one ounce will sow about 103 feet of row or rows. These seeds will not all germinate however, you will be lucky if 80 per cent. of them germinate. You can regulate the size of your seed bed by bearing in mind that you want about 100 running feet of row, or rows, for every ounce of onion seed you sow. After sowing the seed in the little furrow three quarters of an inch deep you must firmly press in about half an inch deep of the moistened earth, with the knuckles. Be sure and press the earth as tightly on to the seed as possible; this is very important. At the same time see that the rows are not left in deep furrows by the pressing; if the soil is only just moist this will not be the case. When a bed is sown give it a fairly good watering with a watering can having a fine rose, and then cover it up with trash for 5 days to keep off the sun and keep in the moisture. On the 6th day take off the trash and on the 7th day the young onions will be peeping through the soil. Give them light waterings early in the morning and late in the evening, not whilst the sun is hot. Now you must look for ants and caterpillars. Look for every ants' nest near the bed by following the string of ants and pour some kerosene down into the nest, this will soon make them leave you alone. Carbon Bisulphide is even better than kerosene. Caterpillars are best dealt with by light dustings with Paris Green and lime mixed 5 parts of lime to 1 part of Paris Green. Remember that nine-tenths of the trouble in raising onions here lies in the great care necessary in the seed bed. Under any circumstances, you will lose by far the greater portion of your young onions by the effects of sun, drying winds, heavy rains, ants, attacks of nematodes and fungi, caterpillars, etc. If you get one fourth of the seeds you sowed to give you onion plants fit for planting out you will have nothing to complain about. You will still have 2,300 plants from 1 ounce of seed, and you will probably lose 12% of these in transplanting, or between transplanting and harvesting, leaving you say 2,024 onions at the harvest from 1 ounce of seed. This means at least 380 lbs. of onions per ounce of seed or about 2¾ tons of onions from 1 pound of seed. You may do better than this. at all events you will have plenty of onions to look after. About 70 days after sowing, the onions will be fit for transplanting. In dry districts do not transplant until the largest leaves are as at least as thick as a slate pencil.

Now about the planting out of young onions.—The land should be forked about 9 inches deep, at least, two months before the young plants are ready to be put out, so as to allow it to get compact before the planting out time comes. The great thing to bear in mind is that whilst onions like a well tilled soil they do not like a soil that is loose in texture below the surface, or rather they do not in loose texture soil give the good hard well formed bulbs that buyers like. A good early forking will get out all the weeds and allow the roots to rot, and render the land full enough of plant food for the onions. When planting out time comes, the land should be perfectly free from weeds, with a fine tilth on top and fairly compact below. Line off the land just as you did the seed beds leaving walks about every 3 or 4 feet and mark out the rows, say 6 inches apart. Make holes with a pointed stick or dibble 6 inches apart and one and a half inches deep. Dig up the young onions from the seed bed, cut off the tops to about 4 inches long, take the earth from the roots and carry them in a shaded basket to the planting out field; plant them as quickly as possible in the new spot and after planting out give each onion a little water if the soil be at all dry. The plants may look rather sorry for themselves for the first week or so after planting out but as long as they have enough size in the bulb part when they are planted out, they will soon recover and go on growing again. Nothing more is necessary but to keep the onions carefully weeded, keeping also the first half inch or so of the surface of the soil in a loose condition so as to form a mulch to conserve moisture. Where cocoa grass comes up it is necessary to use a knife for weeding. The surface of the soil can be kept loose by stirring it with a bent piece of sharpened hooping or by a carefully used Dutch hoe with a blade not wider than 4 inches. Practically all the weeding amongst onions has to be done by sitting down in the pathways or by kneeling on them, a tedious business, so that the cleaner the land is made before planting out the onions the lower the weeding bill will be. Onions never come to anything if the land is allowed to grow weeds so that every attention must be paid to the weeding. If the young onions are set out on cane banks of replant land, the land should be banked at least two months before planting out time and kept weeded as clean as possible. The tops of the banks should then be flattened with a beater if they have not become compact by rain or weeding. The tops of the banks should then

be lined off marking from the centre line first and three rows of onion plants should be dibbled in, making the rows 6 inches apart and spacing the onion plants in the row from 5 to 6 inches. About 100 days after planting out, the onions will be fit for lifting which is indicated by the tops dying down. After planting out it is good practice to water the young plants by hand if there seems a chance of their dying out from drought, but once they have really taken root they need very little water and if any rain falls in December, as it usually does, it will be enough to carry the crop through. Irrigation water should, however, be available in the case of a very dry year, in which case one or two light irrigations, by running the water down the furrows intended for cane planting will be found to ensure a crop.

Taking 3 rows of onions to each cane bank and banks 5 feet apart 396 onion plants will go to the running chain along the banks or 52,774 plants to the acre. These less say 12% loss will give 46,000 onions per acre, and taking these at an average of 5 onions per pound would give 9,200 lbs. per acre or about 4 $\frac{1}{10}$ tons onions per acre.

If you get a penny a pound for the onions, which is as much as you will be wise in figuring upon, for exportation, that is a penny a pound on the estate, the value of the produce of an acre will be about £38 5s. od. per acre or about the value of 76 tons of cane per acre at 10/- per ton for canes. When the onions are ripe they should be pulled up and allowed to lie on the ground for a day or two, if the weather be fine, for the tops to dry more fully. They should then be carted to a house or shed (a trash roofed shed will do and it can be open at the sides and ends) and there they should be laid on racks made of wire netting or else put on a dry trash-covered floor. Do not heap them up but take every care to dry them in the shade and in a good current of air. In a week or so the tops will be quite dry and the onions will have a dry skin on the outside which will protect the rest of the bulb. Pull off the dry tops preferably or cut them off with a knife if they are thick necked and then grade the onions into several sizes, say three sizes. Pack them in standard sized onion crates, which are articles of commerce, and measure 2' x 7 $\frac{1}{2}$ " x 1' 5" outside measurement. These hold one bushel of onions each and the bushel weighs from 50 to 53 lbs. according to the size of the onions; the small dry hard onions of course pack closer than the large ones and weigh more. In packing turn the root end of the bulbs to the slats of the crate and put all the largest onions against the slat. Fill in the centre of the crate with onions of suitable size to fill up all the spaces, as far as possible, and take care to have the crates as tightly packed as it is possible to pack them. In spite of the drying they have had they will shrink before they reach New York, and if they arrive in a loose condition they will get damaged by bruising and begin to rot and then buyers will not look at them unless they are re-packed in New York, the cost of which is about as much as the onions sell for. Buyers are used to getting crates as full as they will hold and so they must be shipped rather fuller than they will hold, so to speak. Be sure and nail up the crates well and turn out a neat and attractive looking package.

For keeping onions for domestic use do not pull off the tops but select the smaller harder onions, say about 2 ounce ones, and when the tops are dry plait the tops into a rope and hang them up in a cool airy cellar. They will keep for 5 or 6 months, this way and be perfectly good to eat at the end of this time. Onions can I believe be made an industry worth going in for in Vere but they must be grown for export, there seems to be little demand for Bermuda onions in Jamaica, the only onions used here being the strong flavoured hard seasoning onion. Onions seems to be hardly used and so far there has not been much sale for them. At the same time any export trade that might be created would be entirely ruined if Bermuda onions growing here fell into the hands of careless growers or exporters. Unless Jamaica can send away first class packed, well cured onions, and no others, a bad name may become attached to Jamaica onions and then the export business would rapidly come to an end.

My advice to people thinking of growing onions on a commercial scale is not to do so unless they are prepared to do everything thoroughly and put in plenty of hard work, care and patience. They are a risky crop and an expensive crop to grow but still it is quite possible to clear £20 to £25 an acre on them at a penny a pound nett sale price on the estate. In the Island of Antigua, onions are being grown by the sugar planters on the banks of early prepared replant land, the best lands being those at or near the junction of the clay and limestone formations. The rainfall is generally a low and uncertain one but still generally enough for onions as the lands retain moisture well and are thoroughly well cultivated and drained for cane growing. The seed beds are usually placed near to a pond. The onions are graded and packed and exported by a Co-operative Association of the planters, and this Association has agents in the United States and Canada who can direct shipments and see that fair prices are paid for the produce sent them. To meet the fullest measure of success

Jamaica onions should be handled in the same manner. In every instance co-operation amongst producers results in better prices being obtained than would be got by independent action on the part of sellers, and this further co-operation with selling agents results in greater safety against the danger of sending on perishable produce like onions to a market perhaps already temporarily overstocked.

(Sgd.) ARCH. SPOONER.

5/11/14.

MEASLES IN PIGS.

"MEASLY PORK."

Sometimes pork is offered on the markets here, which is mottled looking. This is known as measly pork and there are people who will buy it. Of course any Medical or Sanitary Officer would condemn measly pork as unfit for food if he saw it, but this pork (and meat generally), is offered for sale by itinerant butchers anywhere so that there is not much check on it. In the interests of public health the trade of a butcher is an important one, and should be under some regulation and restriction—such as a Butcher's License.

In order that our readers may understand exactly what measly pork is, and the danger of it, we give the following information:—

This is a parasite disease, due to the presence of small "bladder worms" or "measles" in the substance of the muscles. They are termed bladder worms on account of the resemblance they bear to little sacs or bladders. Technically, they are known as *Cysticercus cellulosae*. These organisms, when consumed by man, as they sometimes are with pork, develop into tape worms, and should the eggs of the tape worm find their way back into the pig, they in turn will give out bladder worms. The young bladder worms, when hatched, bore their way through the bowels of their host, and ultimately reach the muscles, where they attain their full development.

The measle or bladder worm, therefore, is to be regarded as a young tape worm, requiring to pass from the pig into the bowels of the human subject in order to complete its development. Measly pork, it will be seen, is one means of conveying tape worms to man, and should not, therefore, be used as human food unless thoroughly cooked.

It is very difficult and as a rule impossible, to recognise the presence of measles during life. Pigs infested by them suffer in various ways, depending upon the organ in which the parasite is located. In many cases they fatten notwithstanding the presence of large numbers, which are only recognised when the carcase is cut up. We have seen the liver studded with them throughout, and the flesh to contain a considerable number without ill-health being induced, and we have known half a dozen when located in the brain, to occasion violent fits and death. When large numbers infest the muscles, the animal moves stiffly and shows signs of soreness. The body wastes and the appetite falls off. There is general dullness and indisposition to move.

Should the liver be extensively affected at the same time, these symptoms are aggravated and the bowels become irregular, being at one time constipated, and at another, loose. The skin may also become yellow, owing to functional disturbance of the liver.

Nothing can be done to this affection in the way of cure. The parasites are embedded in the substance of the flesh, and cannot be destroyed by any known medicine. Where they do not kill the patient, they will in time die, and later on become changed into little white

gritty particles. To prevent it pigs must not have access to the excrement of man in which tape worm exists.

The disease is not often seen in Great Britain, but in Germany and some other parts of Western Europe, where pork is consumed in a partially raw state, tape-worm in man and measles in pigs are common ailments. And this is also the case in Jamaica. Never eat doubtful pork and always cook any part of the pig to be eaten, thoroughly.

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PIGS.

"Can you say if you know where I can get a "China" Boar? I want to see if I can get a short breed here, which will fatten quickly. We have around here a large long bodied breed of pigs which though they grow to a fairly large size take such a lot to feed them that they hardly pay to keep. People are asking for the "China" breed now because they fatten much quicker and are easier sold to the small butcher. If you can get one for me, kindly state price, etc., and I shall be much obliged."

CORRESPONDENT.

Browns Town.

We get queries like this very often now. It would be a pity if the old type of "China" pig became quite extinct. It is nearly so; we have only of late noticed very occasional specimens of the type. If some of these could be collected, and we could get an Essex Boar imported (this breed being nearest the old type) we could breed back the type quickly. Failing that, sows and boars of as near the type as possible would require to be collected by some one interested, followed up by some years of patient breeding and careful selecting. Few would have the patience.

To other correspondents, especially those who have written about breeding up-to-date breeds, by which is meant the excellent modern breeds of England and the United States, we will say that the circumstances of the great majority of those who breed pigs here are entirely different from farmers in the countries named, where food is usually abundant on farms, especially bye-products like separated milk, butter milk and whey which are uncommon here—whey not at all—and the aim is principally to produce the bacon hog. The aim here is to get a pig that will grow easily on such foods as are common here, that will not be a 'rover', but contentedly graze in a pasture and balance its starchy diet itself by feeding on worms, beetles, etc. The greatest demand in the country is for a pig that will within a year be ready for the local butcher's very local trade; the latter cannot afford and cannot sell a £3 or £4 pig.

Then most people somehow like a fat pig, both in their taste and for the fat to be rendered into lard. Last year we imported £7,574 worth of lard, and this has been gradually going up as our old type of pig was more and more bred out.

Now no one must run away with the idea that we are "running down" the big breeds of pigs; they are wanted by many, and we have them here already. The large Black pig kept at the Stock Farm has its uses. It is a good grazer, but as it grows to a great size, naturally it needs a large amount of food; and as it was bred as a pork pig to supply a large amount of lean meat, it cannot do that if it is not fed.

properly. It is a true dairy pig. Anyone having separated milk or butter milk in plenty or who can turn pigs into a field of Cowpeas and has, generally, "good feeding" can make money supplying a town trade with pork; or for killing at Easter, August and Christmas holidays. The Large Blacks are exactly the opposite of our Old China pig.

The Poland China, if of a good strain, not the Show type of that breed, but the farmer's type, is somewhat between the two but not exactly, as the breed is inclined to be long bodied. It is a hardy breed and can adapt itself to "pot luck" feeding pretty well, that is taking what it gets and can pick up, without particularly good feeding. We have followed the history of this breed closely for some 17 years here, and it is a good one for our circumstances.

On the other hand our readers must not get the idea from our mention of the usefulness of the short bodied pig under certain circumstances, and for certain requirements, that it has no drawbacks whatever. The short legged chunky type of pig has faults. The shoats often get too fat by the time they are 6 months old, to breed; the sows have smaller litters than the long bodied breeds; the sows with their short legs more often overlie their young than the larger breeds. In crossing the long bodied breeds and the short bodied type, therefore, the sow should be of the larger breed.

There are of course other breeds of pigs, but these three are the kinds we are most interested in here, and they supply three different types.

What our Branch Societies should do is to read all the late articles in the JOURNAL on Pigs, and discuss well the circumstances and needs of their district as regards this domestic stock.

* * * * *

The diet in time largely influences the type and those interested should be careful if they are looking out for and selecting pigs of the "Old China" type, that they do not make the mistake of taking degenerate, hollow back specimens of the large breeds run small through poor feeding and poor breeding for several generations, as the right type. The back should be straight, the nose short and the ears cocked, not hanging, except a little, as the former type can hardly be got.

:O:

WAR FUND.

It was suggested to us by the St. David's Branch of this Society that our Branch Societies should have a War Fund of their own. We therefore sent out a Circular on the 8th of September conveying this suggestion to the various Branches and stating that we should be glad to act as Treasurer. We suggested that as there were other funds to which members would probably be contributing, the Branches should contribute from their Reserve Fund. The Branches took up the matter enthusiastically and there has been a good response. It would have been better, however, if this Fund—the Branch Societies War Fund—had been kept distinct from all other local Funds and all contributions from Branches sent through us. Somehow, however, several Branches sent their contributions direct to the Central War Fund and some others sent them in to their Parish Fund.

The following are the Branches who have sent us contributions to the Branch Societies War Fund:—

Main Ridge	Clarendon	1	5	0
Prospect	" "	1	0	0
Kellits-Chapelton	" "	1	0	0
Mahoe Hill	" "	2	4	0
Brandon Hill	" "	1	1	0
May Pen	" "	0	15	0
Hanover	Hanover	5	5	0
Mizpah	Manchester	1	1	0
Maidstone	" "	1	0	0
Craighead	" "	1	10	0
Rural Hill	Portland	2	0	0
Coopers Hill	"	3	5	0
Birnamwood	"	1	0	5
Fairy Hill	"	1	0	0
Black Hill	"	2	2	9
Drapers	"	0	10	6
Avocat	"	1	0	0
Fair Prospect	"	1	1	0
Troy	Trelawny	2	3	0
Stewart Town	" "	5	0	0
Upper Trelawny	" "	8	8	6
Darliston	Westmoreland	3	3	0
New Roads	"	1	1	0
Whitehouse	"	2	0	0
Sav.-la-Mar	"	20	0	0
Dallas & Constitution Hill	St. Andrew	1	10	0
Cambridge-Woodford	" "	1	10	0
Bloxburgh	" "	0	10	6
Central St. Andrew	" "	1	4	0
Port Royal Mtns.	" "	2	2	0
Moneague	St. Ann	2	2	0
Clifton-Newstead	" "	1	2	0
Gibraltar	" "	1	0	0
Guys Hill	" "	1	1	0
Claremont	" "	1	0	0
Tryall Hill	" "	0	6	0
Lucky Hill	" "	1	1	0
Mount Industry	St. Catherine	1	0	0
Waterloo	" "	0	10	0
Brown's Hall	" "	0	15	0
Upper St. John	" "	1	1	0
Glengoffe	" "	8	2	6
Southfield	St. Elizabeth	1	1	0
Mulgrave	" "	1	0	0
Nain	" "	0	10	0
Santa Cruz Mtns.	" "	20	0	0
Lacovia	" "	0	10	6
Ginger Hill	" "	5	4	0
Appleton	" "	0	10	6
Maldon	St. James	1	4	0
Cambridge	"	1	0	0
Montpelier	"	2	0	0
Mahoe Hill	St. Mary	1	0	0
Enfield	" "	2	2	0

Albion Mtn.	St. Mary	2	0	0
Hampstead	" "	0	10	0
Marlborough	" "	1	5	0
Oracabessa	" "	3	18	6
Mount Regale	" "	1	0	0
Upper Metcalfe	" "	1	4	0
Lower St. Davids	St. Thomas	£1	5	0
Trinity Ville	" "	5	5	0
Whitehall	" "	1	1	0
<hr/>				
		£149	2	8

Windward Branch, Hanover, sent 81 boxes of oranges as a War Gift to be included in our shipment for the wounded in the Military Hospitals in Great Britain and France, as their contribution to this Fund.

:o:
CRICKETS.

(Report on Crickets from Glengoffe made to the Director of Agriculture by the Government Microbiologist.)

Some specimens were sent on by the Secretary Agricultural Society from Mrs. Northover, Glengoffe, they were stated to be killing her vegetables. The species was probably *Anurogyllus antillarum* (Sauss). They are greedily eaten by fowls and turkeys. They also gather under heaps of dry grass or leaves and may be caught in that way if such traps are scattered in the garden near plants likely to be infected. If fowls, etc., can be excluded the following mixture scattered around attacked plants has been found useful:—

Half barrel fresh horse droppings, one pound salt, one pound Paris Green, mix thoroughly.

(Sgd). S. F. ASHBY,
Microbiologist.

:o:
COCONUTS.

(Report on sample of diseased Coconut Bud from Aeolus Valley, St. Thomas.)

The samples were forwarded by Agricultural Instructor Hanson with letter of explanation dated 17th December. The property belongs to Mr. Samuel Burke and appears to adjoin Lloyds. Mr. Hanson states that the tree was about six years of age, just coming into bearing, and one of a group of well grown and promising young trees. A dwarfed leaf without blades appeared about a year ago followed by two others which withered prematurely; more recently the leaves around the heart yellowed and withered. When cut open the upper part of the cabbage showed a stinking rot; the stem and roots seemed normal. The material received consisted of the bud chopped away well above the top of the stem; the youngest leafstalk at the centre was soft and stinking and discoloured sodden patches showed on the upper sides of the enclosing limbs; there was evidence of recent attack by weevil borer (*Sphenophorus sericeus*) and jumping fly maggots had invaded parts of the rotten tissues. The nature and odour of the soft rot indicated a typical case of budrot which had apparently been working into the heart for some months. The dwarfed leaf without foliage, which appeared a year ago, did not prove budrot present at that time; it is often attributed to beetle (rhinoceros) but nobody has been able to assure me yet that beetles have been found actually

at work in such cases. I consider it a symptom of "eaten leaf diseases" a fungus spot disease which attacks the ribs or blades of the leaflets in the bud. Eaten-leaf should be treated by throwing into the heart a mixture of bluestone (sulphate of copper) (*not* agricultural bluestone) and slaked lime in powder. The other young trees should be protected from budrot by throwing the same mixture into the hearts and within the strainer or syringing in a bordeaux mixture of twice the usual strength; this should be repeated in three months time.

(Sgd). S. F. ASHBY,
Microbiologist.

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HOUSEHOLD NOTES.

FOOD.—The true value of a food is not the composition shown by chemical analyses, but what the stomach can use after the energy necessary for the process of digestion is taken out. A food may be rich according to analysis, and yet be so heavy and indigestible, that the human cannot utilise the nutriment. The processes of digestion are delayed and so much energy consumed in dealing with the food that the man is not helped with energy and strength as he should be, and could be with food lighter and easier of digestion.

This explains for instance why porridge—whether of oatmeal, wheatmeal, cornmeal, barley, or rice has been such an effective diet in the labour of every country using such; and explains why the boatmen of the Amazon whose capabilities for strenuous and continuous labour has been commented upon by many travellers there, are enabled to do this. Their principal diet is *Furinte* or *Farine* (made from *Cassava*) which we have found to be very easy of digestion and for man and beast a satisfactory and a nutritious food.

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VARIOUS METHODS OF COOKING.—STEWING.—Stewing is generally defined as a gradual process of simmering in a small quantity of liquor. From the point of economy, this form of cooking should be best understood because it is the least expensive and most nourishing way of cooking. The advantage which stewing can claim over boiling or simmering is that the more nourishing and soluble elements are not separated from, but served up with the meat, the full flavour of which is thereby preserved. Stewing is one of the most economical methods of cooking meat, because the coarser and cheaper parts, which cannot well be used for roasting or boiling, can by slow continuous stewing be made tender, palatable, and nutritious. The meat selected for stewing should be lean. This method of cooking entails little loss; all the juices which come out of the meat amalgamate with the gravy or sauce, which is served with the meat. Very little fuel and attention are needed to cook a stew after it has started cooking. The heat must be slow and gradual, never reaching the actual boiling point, and the scum must be removed occasionally. Only enough liquor is used to cover to prevent evaporation. Tough meat, unsuitable either for roasting or boiling, can be made tender and palatable by stewing. There are two ways of stewing known and practised: The first is partly frying or browning the meat before stewing, and the second is parboiling. A close covered sauce pan, or a fireproof casserole, is the best utensils for making stew. The cooking may be done in an oven or over the fire.

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WHY A BAKED POTATOE IS THE BEST.—Potatoes are such familiar articles of food now that hardly anybody considers it a problem to be able to cook them properly. Yet there are good and bad ways of preparing potatoes, and probably the bad ways are the ones most frequently used. The principle value of the potato is in its starch content, but it is valuable besides on account of its mineral salts and tissue-building ingredients. In order to get full food value out of the potato, we must cook it in such a way as will retain all of these valuable food elements. It is a bad practice to peel potatoes, because by exposing the part directly under the skin—which is the most valuable part of all—most of its important ingredients are lost. The best way to cook potatoes is to bake them in their "jackets" in an oven of 450 to 500 degrees Fahrenheit. When the potato is taken out of the oven it must be pricked with a hot fork or broken at once, to permit the escape of the steam which

has generated in the cooking process, and which will otherwise condense into water and make the potato soggy and indigestible. By doing this there is no chance for the food elements to escape, and if the potato is scraped out well from the skin (where lie the potash salts) pretty full food value will be secured. These potash salts help to feed the cells of the body, and are, of course, very valuable. Never cut open a baked potato; always break it, otherwise it will be soggy and barely fit to eat.

The next best way of cooking potatoes is to steam them in their jackets. Potatoes cooked in this way are delicious, and if the peeling is done carefully very little of the nutriment is lost. Another good method is to boil the potato in its jacket. This takes less time when either of the above methods, prevents any slow dissolution of good material from the potato, and preserves the flavour.

Because potatoes are so lacking in fat, proteid, and mineral matter it is becoming the rule to serve them with meats, and to prepare them so as to introduce the food constituents they lack. People who want to keep thin should not eat too many potatoes, for the large amount of starch they contain has a tendency to produce obesity.

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To bake Irish potatoes quickly, boil them in salted water for ten minutes, then put them in the oven. The boiling water will heat them through, and they will bake soft.

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When boiling an old fowl or tough meat, add a piece of soda to the water. Simmer gently, and the meat will be perfectly tender.

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When boiling water in a vessel without a lid, so as to keep the smoke out, place a piece of wire just across the top. This catches the steam and keeps the smoke out of the water, and your tea will taste nice made in an open billy-can.

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POISONS—FIRST AID.—Poisons of many descriptions, which have been intentionally or accidentally taken, may almost instantly be rendered harmless by simply drinking half a pint of sweet oil. A person with a strong constitution might take more.

:O: Poultry Notes.

In the nights of rain that have occurred in some districts regularly during November and December, it is safe to say that those hens that are under shelter will be laying well when those roosting on trees are checked if they have already commenced laying early, or will be delayed starting if they have not already commenced, all under conditions, such as feeding, being equal.

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The first batch of chickens for the season will soon be appearing. One of the mistakes of those who do care for their chickens well, is over anxiety to feed the little chicks almost as soon as hatched, and much mortality takes place through overfeeding. Nature has provided a chicken with enough food to carry it for 36 hours or longer after hatching without food, for just as the chicks are on the point of hatching they draw up the remains of the yoke in the egg into their bodies. Therefore there is no hurry to feed: all that should be done is to put the hand gently under the hen to see how many chicks are hatched, remove the eggs not hatched and the empty egg shells. The eggs not hatched should be gently chipped against a hard sharp substance—a sharp stone for instance—holding the hand well away in case the egg is rotten and bursts. Any egg that on being opened is rotten and evil smelling, has been fertilized; those eggs that are found quite clear and fresh have not been fertilized. As explained in the JOURNAL before, there are many reasons why eggs set may not hatch, even though fertile. The hen may have had too many eggs to cover and

some have got chilled: she may have been off the nest too long such as a whole night—a whole day in this climate would not kill all the undeveloped chicks but would kill the weakest,, and might affect the rest badly; a half hour is enough for a hen to be off her nest: the germ may have been weak to start with, through the cock having too many hens or being old and weak or sick, or the hen may be too old but this seldom happens; a bad line is a common cause of infertility in both sexes; the eggs may have been too old or if kept only a week or 10 days have been allowed to lie on one side only, when the whole contents of the egg settle towards that side and although germination starts, the embryo cannot develop: or the eggs may have been kept in a place exposed to breeze, which evaporates too much of the moisture out of an egg and the embryo cannot then develop, although germination may start.

We shall deal with foods next month.

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COMMENTS.

PRIZE HOLDINGS COMPETITIONS.—Because of the long drought in both parishes, the judging in St. Mary and St. Ann has been postponed and will take place, in the former in March and in St. Ann in April.

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MEMBERS.—There are a good many people who write the Society for information, who are not members of this Society, who are not even members of a Branch Society. Surely they ought to become members.

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FOOT AND MOUTH DISEASE.—The serious outbreak of this disease among live stock in the United States is being rapidly got under control and, with the advent of severe frost, it is expected, will quickly be put an end to.

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CASSAVA STARCH.—Germany did the largest trade in Starch of any country in the world, owing to their enormous production of potatoes. Their exports of starch have now entirely stopped, and so there ought to be good prospects for Cassava Starch.

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MEETING.—As intimated in the JOURNAL for November, the Half-Yearly General Meeting will be held on Thursday, 21st January. Notices were sent early to the Branches in order that they might consider whether they could send a delegate, and if so appoint one.

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INDEX.—The Index of the JOURNAL for January to December, 1914, will be issued separately. To be economical we do not print the same number as of Journals, but any reader who saves all his Journals, wishes an Index for ready reference, and does not get one, should write us for one.

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GUINEA CORN.—We shall have plenty of White Guinea Corn for planting from March on. This grows luxuriantly, but does not bear till January next. The seed of Red Guinea Corn is still so scarce that we have only a small quantity of imported seed available at 3d. per large packet.

DIARIES.—We hope every reader has supplied himself with a Desk Diary, 2 or 3 days on a page in order to note all that it is necessary should be recorded, for future reference. Small settlers who do not yet keep Account Books will find a Diary with money columns an excellent medium to make a simple beginning in book-keeping

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SEED CORN.—Many people were writing us for Seed Corn at the end of December to the beginning of January owing to the good seasons that were prevailing intending to plant then, but owing to the demand from August to October, which we were not even able to supply, we could not carry over any seed. The new crop does not come in until the end of January, and owing to the late planting, we will not be able to supply seed until the beginning of February. We shall have some good seed then but our chief supply will not be available until the end of that month to be ready for the March planting.

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SOY BEANS.—We have again imported some Soy (or Soja) Beans, of which such large quantities are now being imported into the United Kingdom from China, Manchuria and Japan. This bean has been the mainstay of the Japanese for the protein in their food; they make vegetable cheese from it. It is exceedingly rich in protein and oil. We sent out some of this bean some years ago. It succeeded in the mountains but failed in the lowlands. The variety we now have ought to succeed in the lowlands. This bean would be a good addition to our food crops. We will send out this to introduce it-at 3d. per large packet.

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RAT KILLING COMPETITION.—The Cambridge Branch of this Society in St. James held a second rat killing competition with excellent results. Mice were also included in the Competition. Nineteen persons competed and the total number killed in the quarter, from the 5th September to the 5th December, was 611 rats, 308 mice. The 1st prize was awarded to Walter Wakeland who had a total of 274 rat tails and 230 mice tails. He was a long way ahead of any others.

We hope other Branches will take up this Competition. It is real, useful work to destroy as many rats as possible. We have often given figures estimating the amount of damage they do to agriculture.

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COCONUTS.—There is little demand at present for Coconuts even at a low price. The dry nuts do not keep for long, so the best plan is to turn them into Copra, which is the commercial term for the dried kernels. The Coconuts are simply split open and the kernels scooped out in as large pieces as possible. They are then dried in the sun or in a Dryer—and that is Copra.

This product can be kept for a long time, on the chance of the price going up again, but we are afraid this will not be until the war is over. As we import £23,000 of Cotton Seed Oil (which may itself be scarce next year) we think it would pay growers of Coconuts, especially the smaller ones, to make oil of their nuts. There is usually a good local demand for Coconut Oil. It pays to manufacture it at even 9d. per quart.

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CORN MILLS.—The new corn crop will be in some time at the end of January and the middle of April, and although late planted in most places which may effect the crop, it will be a fair crop. Some of the

Branch Societies have been equipping themselves with corn mills so that their members may make their own cornmeal more expeditiously than by the beating out process. But corn mills are handy beyond the making of cornmeal for use in the household. No whole corn should be fed to horses or fowls; it should be roughly cracked; in doing this some fine meal results and this can be sifted out before it is fed to fowls, otherwise, it might be wasted on the ground. The quantity sifted out can be used for dog feeding. We can give information about corn mills. The trouble with some of them is that the metal used is soft and the grinding parts do not last long. We have been trying to get a suitable mill the grinding parts of which are made of very hard metal, and we are getting samples of the different kinds advertised. Of course we refer to hand mills. When it comes to power mills there is not much trouble in getting large ones with hard metal.

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TICKS.—There are some properties that have been made almost clear of ticks within the last few years. There are other properties still infested, large ones too—and there are many proprietors who still use the antiquated tar brush or a piece of crocus bag to apply crude dressings. It seems a most extraordinary thing that men of positions and education are still content to allow their pastures to be infested with ticks so that no one of their household can venture into them; keep their cattle miserable, their growth delayed and their final value reduced, all because they will not rouse themselves to make an effort. In these days when hand spray pumps costing 12/6 are available and various simple, very easy to be procured, and easy to be applied preparations which we can guarantee to be effective against ticks, as advertised in this JOURNAL, and with the Department of Agriculture prepared to send out a special mixture—it is amazing that there are men who still daub parts of their cows occasionally with gas tar. The matter is serious enough in the interests of the Island to warrant compulsory measures being taken to reduce the tick pest. We read that several States in the Southern United States have been declared free of ticks after compulsory measures have been adopted for some years past to get rid of them.

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SUGAR.—Great Britain in 1913, consumed two million tons of sugar 80 per cent. of which was beet sugar from the continent of Europe, none of which will be forthcoming in 1915, so that over a million and a half tons of cane sugar, additional, will require to be furnished this year unless the people in the United Kingdom have to go very short. That they will go short is undoubted, as scarcity of an absolutely necessary product means a high price.

A large proportion of the sugar imported into the United Kingdom is for use in making preserves, in which there is a large trade. Dear sugar means dear preserves, and a great falling off in consumption. There will certainly be no extravagantly high prices for sugar, as people would simply do without high priced sweets, preserves, &c., and use a minimum of sugar in their tea and coffee. The whole supply of sugar from British sources, if it could be commandeered, would only provide 550,000 tons. If the price of sugar rules high in Great Britain, it follows that it must rule high every other place. The sugar used in Great Britain is mostly refined sugar; that is after the cane sugar leaves Jamaica or other country of production, it is refined into a crystal, or fine sugar; after this process there are two bye-products—treacle

and syrup, the former principally used to feed cattle although it is also used by human beings) and a fine golden syrup often used in place of jams or jellies. Sugar made in Jamaica by the centrifugal process is partly refined that is what we are called Brown and White Albion, and it is sold locally at a figure based on the price abroad. At the present time that is very dear 3d. to 3½d. in the country for White Albion. Much of the sweetening, however, required by the poorer people is got from the sugar made in open boilers here by small settlers, who grow small areas of sugar cane. This sugar is put up in tins (kerosine tinsize) and this is often sold very cheap—at present 4/- to 7/-, according to locality—called “wet sugar.”

In the parish of Manchester sugar is sold in another form called “head” sugar, otherwise the same wet sugar boiled thicker, ladeled into round tin shapes where it hardens and is sold in blocks called “heads” at 1d. to 1½d. each now. The “heads” run about 1¼lb. in weight, at present, so that this sugar is sold at not more than 1d. per lb. or £9 6s. 8d. per ton. We pointed all this out to our Branch Societies and suggested, that as the local markets were easily glutted with wet sugar and head sugar where sugar estates were not within reach, to buy the former to manufacture with their own, the more experienced could drain their wet sugar and so make dry sugar which could be sold in the local shops; this would also let free more estate sugar for export. At the price of good dry sugar compared with wet sugar, this seemed practicable.

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FOODSTUFFS.—When over 25 millions of men, a goodly portion of whom are engaged in agriculture, and who instead of being producers become larger consumers than usual, are withdrawn from their usual vocations; when a whole country, and that one of the most highly productive as Belgium was, and parts of other countries, producing foodstuffs, are laid waste; when large quantities of foodstuffs are destroyed as is inevitable in war, it should follow that there is likelihood of some of the primary foodstuffs being scarcer and, so, dearer than in pre-war times. On the other hand, there are countries shut off from their usual imports of foodstuffs, and they must do as they can with what they have, with less variety and probably in time with less quantity to eat too, so that the supplies usually got by these countries are diverted into those with open ports. No one in August and September could tell what might have happened, but thanks to the British Fleet, the seas have been kept open and Jamaica at any rate has suffered very little inconvenience. Still, nearly all imported foodstuff are much dearer than in pre-war times and nearly all our own products which are sold abroad are cheaper.

In response to our circular to Branch Societies, issued immediately after the outbreak of the war, pointing out these facts and the advisability, as a wise and economical precaution, of producing as much food of our own food as possible, very strenuous effort has been made in this direction, in spite of continued drought in St. Ann and the Eastern parishes, so that no planting could be done in the parishes in August and September and little in October. There will be a larger amount than usual of yams, sweet potatoes, cassava peas and corn, ready from March to June next. Then the banana trade has become dull and as the other native foods mentioned are not in great supply yet, a larger amount of bananas than usual are available and being used

Readers should remember not to waste bananas, but peel them when full (not using a steel knife) cut into chips, dry, and store them; the dry chips can be ground into meal any time in a corn mill, and used for porridge or pap. We are using banana meal regularly and we found it served at breakfast in the country house of one of the largest cocoa planters in the Island, whom we visited lately to look over his fine cultivation. At least one member of the Board of Management uses it regularly in his household.

Keeping up the planting of food crops and especially look ahead and prepare ground to plant large crops of corn. Imported American corn and oats are much dearer and such horse and cattle feeds as bran and middlings are very much dearer also. We have a local market of £50,000 to work upon additional to what we supply already; that is the amount we pay for imported corn.

Planting of corn, sweet potatoes, cocoas, etc., enable us also to feed pigs cheaply and the Island is short of pigs now owing to scarcity of feeding during these last 7 years.

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QUERIES AND ANSWERS.

We published a question in the JOURNAL for December, which asked how scorpions could be got rid of in a house.

We have had two replies. One says that croaking lizards prey upon scorpions; therefore encourage these lizards.

Many people however, hate the presence of croaking lizards, but they are harmless.

The second reply is very interesting and would excite smiles if published in full.

It is to the effect that if cock roaches are got rid of the scorpions will disappear, as roaches are their chief food. Therefore poison the roaches which is easily done. A bait harmless except for roaches, mice and rats can be made up of one part of Plaster of Paris mixed with 3 or 4 parts cornmeal, placed in little heaps or in saucers or tins where the roaches will get at it. Sweetening with fine sugar will make this bait more attractive.

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NOTES FROM CORRESPONDENTS.

FIGS.—I planted out 4 acres of corn as a result of your circular *re* Foodstuffs, and am looking forward to a very good crop.

I am thinking of indulging in a pair of pigs, having been much inspired by your article in the November JOURNAL. Can you secure a boar and a shoat for me for about 50/-? I would like a pair of the Essex strain that like grass, as I can fix a run for them. Very great interest is now taken in the JOURNAL and a few persons have been asking me about these pigs. An early reply will oblige.

(Sgd). G. W. M.

Ulster Spring.

GUINEA CORN.—The white is a sight to see. 50% is 12 ft. high with great massive heads. None of the field is less than 8 ft. So far I am glad to say the birds have not troubled me, and as the ears are all practically filled out with grain I am hoping that I shall escape them this time. I intend cutting in February only the ripe ears leaving the stalks to send up the secondary ears which they are beginning to already; is this correct?

I have a measured acre in the *Red* which is a failure, germinated badly though planted in the same way, seed treated with Kerosene and ashes, and what has grown is only 4 ft. high, very weedy and ears poor. Still I shall replant again in March for another trial.

Brown's Town.

A. R. T.

CORN.—The seed I got from you has grown splendidly, it had perfect seasons and could not have borne better. I shall be breaking it in early in February as it was planted on the 15th September.

Brown's Town.

CORRESPONDENT.

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BRANCH NOTES.

BLOXBURGH (St. Andrew).—The regular monthly meeting should have been on the 23rd November, but on account of heavy rains the meeting was not held. A meeting was held on the 30th instead; probably through the Instructors presence being not known as also through the disappointment of his early visits, caused a small number of members to be present; however, we had a small but encouraging and satisfactory meeting. The present conditions of the district on the same range as Dallas was discussed. Mr. Hanson was for the planting of cane, urging that this valuable product should be looked after immediately, as also sweet potatoes and gungo peas, which will help well in times of scarcity, as foodstuffs; he explained to us the value that comes or can be had through the working of cassava in these dry districts chiefly in times of scarcity; of Irish potatoes and beans, naming the different varieties to plant as suitable food stuffs, all these will help as quick food crops through the prevailing droughts which happens so often in these districts; and in consequence of the lengthening of the war. We have asked for some cassava sticks, and potato slips as we are now in the time of planting, and we desire some good breed that will bear quick. Please inform us how to get these up here and if the department will pay the expenses toward helping us. Mr. Hanson has promised to look after the other things such as cedar and other plants at his next coming up. Meeting adjourned.

S. ROBINSON, Secretary.

GUYS HILL (St. Anns).—The monthly meeting was held on the 26th November, the meeting having fallen through the previous week. There were present, the two vice-Presidents, the Secretary and eight other members. It was reported that the Superintendent of the Parochial Board of St. Ann had come to look at the streams in the District; pollution from which this Society has been seeking protection, and the matter being before the Board, Mr. Allen has been deputed to get the names of persons living on the borders of the streams in question. Circulars from the Secretary of the Parent Society *re* War Fund, War Gifts and Sugar, as also from Mr. Cradwick, Instructor, *re* his visit, and Prize Holding Competition were read. The gifts of citrus fruit to the soldiers of our Empire being dealt with, Mr. E. G. Pullock said he would give 1,000, Mr. Allen 1,000, Mr. Wm. Brodber 300 grapefruit. The opinion was expressed that people outside of members of the Society will give freely if approached. Messrs. Allen, Martin and Pullock promised to give their help in the packing, etc., the last named gentleman also promised to cart the shooks up from Linstead free. The Secretary was instructed to find out from Mr. Barclay how far the central fund will go towards meeting the expenses. Mr. Cradwick wished to know whether there were any competitors of the Prize Holding Scheme from this Branch, the Secretary was informed that Mr. W. Brodber has decided to compete and was instructed to inform the Instructor. The Secretary was asked to write to the Surveyor General for information *re* Crown Lands in the Swift River District of Portland—price per acre and terms. It was decided to let the election of a President lie over till the beginning of the financial year, the vice-Presidents acting meanwhile.

W. E. WATSON, Secretary.

SPANISH TOWN (St. Catherine).—The annual general meeting of this Society was held on Wednesday, the 2nd December. Present: Revd. W. Clarke MacCalla (President); the two Vice-Presidents, the Treasurer, the Secretary, and six other members. Report of Committee of Management was read and confirmed. The election of officers to serve during the year commencing 1st April next, was now proceeded with, with the following results:—Rev. W. C. MacCalla, President; Messrs. W. Gentle and D. A. Aldred (Vice-Presidents); Everard Lopez (Secretary); C. S. Soares (Treasurer). The Rules of the Branch were approved *en bloc*. Read

Circular from the General Secretary *re* Cane Sugar, which is referred to a Committee for consideration, with a view to formulating and submitting a scheme for taking up cane cultivation. Mr. Russell deplored the fact that the Branch could not contribute to the Agricultural Society's War Fund, and advocated the getting up of a Show to popularize the Society and at the same time raise funds. The meeting adjourned until the 6th January, 1915.

EVERARD LOPEZ, Hon. Secretary.

STURGE TOWN (St. Anns).—There was a fair number of the members present on December 18th, even when it rained so heavily. Mr. A. Arnett, the Agricultural Instructor, with his assistant, Mr. Rennie, gave addresses. Mr. Arnett roused the spirits of the members to fever heat when he shewed the usefulness and the place, that agriculture now occupies. A hearty vote of thanks was given him. Mr. Rennie's address, though short, was encouraging.

S. J. PALMER, Secretary.

MT. INDUSTRY (St. Catherine).—A meeting was held on the 3rd December; there was a very good attendance. Mr. Hanson was present and pointed out to the meeting a very serious case of "bud rot" in a coconut tree. He addressed the meeting urging the cultivation of such crops that will be in readiness early last year. A case of fowl sickness was dealt with, and an interesting and useful discussion on "Yard Sanitation" led by Mr. L. A. Davis was held. The discussion will be continued at next meeting. Mr. Lawrence, teacher of Mt. Industry School, became a member. The Instructor agreed to give a lecture on the cultivation of Cassava when next he visits the Branch.

R. SIMEON ANGLIN, Secretary.

RURAL HILL (Portland).—The regular monthly meeting was held in the School-room on 29th December, 1914. Present: Rev. S. I. Moodie, President, in the Chair; L. A. Wates, Esq., (Instructor), twenty-six other members, the Secretary and three visitors. Cane cultivation:—An answer from Mr. Henshlewwood that he is willing to rent cane lands, provided there are not less than twelve persons to start with, as he will have to put up a mill on a convenient spot. The Instructor advised those persons to co-operate that everything may be done in a fair way. A debate started by Mr. George Sinister and others that a pig is more profitable than a goat. There were twelve persons for the goat and thirteen for the pig, which carried. This made the meeting lively and bright. The Instructor also cautioned about Panama disease in bananas, that as soon as it is seen in our fields it must be reported to him, for it is a dangerous disease. He also informed us that Mr. Barclay can get a rooster of the Plymouth Rock or Orpington breed for the Branch. Two new members were enrolled. Richard Panton and Edward Neily. Received one shilling and a penny for a grindstone. Correspondence from Mr. J. Barclay was read towards the sending up a delegate to the Half Yearly Meeting. after which meeting stood adjourned by singing the National Anthem.

A. A. FLEETWOOD, Secretary.

WILLIAMSFIELD (St. Catherine).—At a meeting held here on Thursday, 3rd December, 1914, the following members were present: P. R. Ingram, (V.P.); the Secretary, H. L. Mossman (Instructor) and ten other members and a few visitors. The Instructor held a Demonstration at Mr. Taylor's. They were many good lessons taught in the pruning of Cocoa and Coffee, in which the members were deeply interested. They urged on the Instructor to return at an early date. The Instructor spoke on the War and encouraged the members to guard against the hardships of the time, advising them that sweet potatoes, peas, beans, etc., should be planted in abundance. He also referred to the pumpkin seed, which Mr. Taylor bought from the Society; it has proved a great success, only a 3d. spent, has already made a profit of 19s. 9d. One dozen pumpkins were brought to the meeting as samples. The members were much pleased; the Instructor bought one for 2/- which weighed 34 lbs., the balance was shipped to Kingston. There are a fairly good number still left in the field for harvesting. The next meeting is fixed for the first Thursday in January, 1915. The Secretary moved a vote of thanks to the Instructor for his valuable services which was unanimously carried by all the members. Meeting adjourn.

D. E. TAYLOR, Secretary.

COOPERS HILL (Portland).—The regular monthly meeting was held on the 3rd December, 1914. The following members were present: Messrs. D. S. Morris, Vice-President, presiding, ten other members, and the Secretary. As arising from the minutes the reply from the Hon. S. S. Stedman to a letter and copy of resolution sent him *re* "rent of Crown Lands" was read. He promised to try his best in the matter. Mr. Barclay's advice on the same matter was also read. Mr. Mossman's scheme on Cooperative Societies, which appeared in the November JOURNAL was next read by Mr. R. J. Valentine. Most of the members present thought the scheme a good one which would work well especially with regard to obtaining good prices for cocoa. A paper by Mr. Edward Valentine on "How to improve the Society financially and otherwise" was read by the Secretary as Mr. Valentine being indisposed, could not attend. It was, however, thought that the question being an important one and the attendance having been rendered small by the inclemency of the weather, discussion on the question would better be postponed for another meeting. It was decided to call a special meeting to deal with the question. This was fixed for the 17th December. The meeting then adjourned.

J. E. BROOKS, Secretary.

GINGER HILL (St. Elizabeth).—The monthly meeting was held at Ginger Hill on Thursday, December 3rd, 1914. There were present, twelve members and three visitors. Mr. G. L. Salmon, V.P., presided. The Chairman gave a few brief remarks. Matters arising out of the minutes, *re* roads: the Secretary showed the absolute necessity of a new road to be constructed into the District, branching off from the mainroad at Ginger Hill, leading across the Railway on to Ipswich via Merrywood, for the convenience of the people who are taxpayers and cultivating on Merrywood. By not having any road, they have to be walking on the rail road, which costs them unnecessary expenditure whenever they are prosecuted and brought before the Court. A resolution was passed at the meeting, that a petition be drawn up and sent to the Parochial Board at Black River for the construction of a new road. Authorized persons: Mr. Roderick Jones reported that the inhabitants are behaving themselves honestly and there is no work for Authorized Persons at present. The Chairman exhorted members to pay up their arrears. The subject of the death of the Hon. J. M. Farquharson was brought before the meeting and the members were moved with sympathetic feeling for the great loss of their Hon. Member, who always acted promptly in time of necessity. The Chairman said he wanted to purchase three books for the benefit of the Society for cultivating purposes. The National Anthem was sung and the meeting adjourned until 7th January, 1915.

R. L. GORDON, Secretary

CENTRAL ST. MARY (St. Mary).—The regular monthly meeting was held in the Clonmel School Room on Thursday, the 3rd December. Mr. J. A. Banks, President, presiding. Present were: Messrs. Gunter and Watts, Assistant Instructors, Rev. Coore, the acting Secretary, seven members and a few visitors. The President spoke on the matter dealing with the rearing of stock and asked that persons owning goats and pigs who were desirous of improving the breed of their stock, be asked to send in their names, so that the Branch could get a census of the animals in and around the district, when arrangements could be made for the securing of a Boar or Ram for service. The President asked that all the members, who made promises towards the War Fund, be asked to send in their subscriptions as early as possible. It was also suggested that any amount received be sent to the Secretary of the Parent Society in the meantime. Read correspondence from the Secretary of the Parent Society stating he could not promise to insert *all* the Branch Notes sent in. Owing to the increased cost of paper, 10—15 pages of the JOURNAL had to be cut. It was reported to the meeting that 250 sugar cane tops were sent by the Hon. Director of Agriculture to the Branch. Members who required plants of this cane, must send in their names to the Secretary. Messrs. E. W. McLean, S. Richards and L. Johnston, of Clonmel, became members and paid up their fees. Mr. Watts gave a lecture on the Panama Disease which broke out in the parishes of Hanover and Portland. He said he was informed that Mr. Cousins visited one of these spots in Portland and had it enclosed and disinfected. Mr. Gunter informed the Branch of a lecture which

is to be given at Annatto Bay on the 15th by the Entomologist, Mr. Ashby, and at Port Maria on the 16th. He also encouraged the Prize Holding Competition in January.

F. A. WILLIAMS, Actg. Secretary.

CAMBRIDGE (St. James).—The regular monthly meeting was held on Saturday, 5th December. Besides Mr. E. E. Myers, Senior V.P., in the chair and the Secretary and Instructor, there were 15 other members and some visitors present. Messrs. W. Wakeland and Edward Brissett were elected as new members. The Chairman informed the meeting that he had got the broken handle of the grindstone replaced by a new one, costing 1/6, and he would send the stone to the Secretary's yard soon for protection. Mr. Briscoe reported that he had sent off 47 boxes oranges and grape fruit from the Branch and 33 from Mr. Edwards, Montpelier, for the Military Hospitals in Great Britain and France. We expect to send some more in January next. A letter was read from Mr. Barclay informing us that our Branch took 3rd prize for bananas at the late Toronto Exhibition. Mr. Briscoe pointed out that this part of the Island had done well in bananas as no less than 5 of the Toronto prizes had come this way. Another letter from Mr. Barclay informed us that the next half yearly meeting of the society will be on Thursday, 21st January. It will be decided next meeting whether or not we will send a delegate to it. The Secretary submitted the Report of our second Rat-Killing Competition. It showed that 19 persons competed, and 611 rats and 308 mice—total 919—were destroyed. Mice were not intended to be included in the competition, but a record of them was kept for information and comparison; but if included the results for prizes are the same. The following are the donors and prize winners: 1 Mr. Briscoe's, Walter Wakeland, 274 by 230 equal 504; (2) Mr. Fletcher's, Edwin Martin, 132 by 47 equal 179; (3) Mr. Kerr's W. Reid, 66 by 3 equal 69; (4) Mr. Chambers' Joseph Medley, 40 by 1 equal 41; (5) Mr. Shirley's Little 7 year-old Doan Irving, 27 by 13 equal 40. The result was on the whole considered good. Mr. Briscoe said a few words on the Panama Disease showing the symptoms and urging on members to report it promptly should any suspicious case come under their notice. Mr. W. Reid suggested that a fruit combine for the District to enhance proper cultivation and curing, and the sale of our products should be formed. The matter was well discussed and a committee was formed to go into its details and report at next meeting. The meeting closed with the singing of the National Anthem. R. M. ARNOLD, Secretary.

BRANDON HILL (St. Andrew).—A meeting was held in the Schoolroom on the 7th December, 1914. The Chair was taken by the President, Alex. Allen, Esq; Mr. A. P. Hanson, the Instructor for the District, was also present, as also were five other members, and the Secretary. It was a rainy day, and the Agricultural Instructor spent threefourths of his time in demonstrating on the premises of Mr. Roderick McLaren, accompanied by many of the members of the Society. The following motion was put forward by the President:—Resolved, that the Secretary writes to the Secretary of the Parent Society, asking for the rates as regards to the selling of Crown Lands, and that they be inserted in the next issue of the JOURNAL. Five tools were bought for the use of the members of the Society, and the Instructor explained at full length the use of them. He gave an able address on the growing of cocoa. Reference was made to neighbouring districts where cocoa was in very bad and sickly condition, suffering from various diseases and injuries; and by the keen attention given them upon his instructions to the settlers, there has been a marked improvement. He showed how cocoa-trees could suffer from injuries created by other trees and man. Wood-ants and red-ants are also harmful creatures, and these could be got rid of by rubbing the diseased parts with tar. The Bordeaux mixture was next spoken of, and by spraying the trees with this mixture, the harm done by fungus would cease. A vote of thanks was accorded the Instructor for his able address. The meeting was then brought to a close by the singing of the National Anthem.

CHAS. E. KELLY, Secretary.

WINDSOR FOREST (Portland).—The postponed monthly meeting was held in the Schoolroom on Monday, the 7th December, 1914. Present were: Jno. Panton, Esq. (President), 15 other members, several lady visitors and the Secretary. The minutes of the 5th October were read and confirmed. Arising from the minutes,

the President enquired whether the Parochial Board has fulfilled their promise according to their letter of the 13th October, 1914, respecting the inspection and improvement of the W.T. Water Hole. The Secretary replied in the negative. The matter was then discussed and agreed to wait on the Board's time. The President enquired of the steps taken by the members, and the district in general, with regard to the planting of sugar cane and other crops. Several members and the Secretary spoke, informing the President that there is marked improvement noticed and every member is planting cane. It was proposed that the Secretary should write the Secretary of the Parent Society in reply to his letter of the 19th October, to the Branch Societies *re* War Funds. After the finances were gone through the meeting adjourned with the singing of the National Anthem, to the first Monday in January, 1915.

C. A. SMITH, Secretary.

BROWN'S HALL (St. Catherine).—A meeting was held in the Schoolroom on Wednesday, 9th December. There were present: The Rev. G. L. Young, President, in the Chair; Mr. H. Mossman, Agricultural Instructor, six members and the Secretary. As regards the War Fund, the Society voted the sum of ten shillings to be supplemented by contributors from the members. A very hearty response was made to this and an additional amount of five shillings was immediately collected. The President promised to attend as Delegate the next general Half Yearly Meeting of the Parent Society. The Instructor at this stage addressed the meeting. His subject was based on the history of sugar and was very interesting and instructive. He pointed out that if the small cultivators would adopt the system of putting up their sugar in barrels instead of tins, they would be better remunerated. The district is one, he said, in which much could be attempted and obtained by agriculture, if the spirit of cooperation existed. He went on to deal with the progress of the war and showed how the moral consequences were at work in moulding the minds of men into a better condition. After a few questions from members were answered, the President on behalf of the Society, thanked the speaker, and the meeting then adjourned.

J. M. COUSINS, Secretary.

ENFIELD (St. Mary).—The regular monthly meeting was held in the Schoolroom on the 9th December, 1914. There were present: Rev. W. S. Taylor, presiding; the two Vice-Presidents, the Treasurer, the Secretary and 11 other members. The President welcomed the members as usual, and in the course of his address, he touched upon the present European War. He also reported that £5 10s. 2d. was sent from this district as contributions to War Fund; of this amount £2 2s. 0d. was given by the Branch. A letter from the Secretary of the Parent Society was also read, and dealt with. As business arising out of the minutes, the question of the grindstone was settled definitely. The letter from the Clerk of the Parochial Board *re* the application that was made to that Board from this Branch to have certain perennial streams in this district put under protection from pollution was read. This letter aroused a very lively discussion. After several members had expressed their views on the subject, it was put to the vote and carried that the streams be protected. The President was unanimously appointed to represent the Branch at the next Half-Yearly General Meeting to be held in January next. The roll was then called and the meeting was brought to a close with prayer and singing of the Doxology.

J. Z. JOHNSTON, Secretary.

MORAVIA (Manchester).—The Branch met in the Schoolroom at 4 p.m. on the 10th December, the President, Rev. W. Z. Getfield, in the Chair. There were also present Mr. S. A. Schleifer, Agricultural Instructor, and about 20 members. On the motion of the Instructor, Mr. J. N. Simpson was introduced as a new member. He was afterwards elected unanimously as Secretary and Treasurer. The Dry Sugar Industry which was laid over from last meeting was fully discussed. It was finally agreed that the small settlers should plant as much cane as they could, clean up old fields and make the tin sugar, which may be bought by the estates, which are in a better position to do the required drainage. Mr. Forbes, one of the members' during the discussion, brought out an important point and that was the planting of trees to form fuel, such as bamboos, the Brazil wood and any such woods as would grow quickly, to aid in the manufacture of the sugar. The Instructor then advised

the members to plant such useful trees as Eucalyptus, which can be obtained at the Hope Gardens, Cedar and Mahoe—these for shingles, scantlings and boards. It was finally adopted that each member give at least a threepence to obtain plants of the Eucalyptus, and that from the fund of the Society half a dozen of the same plants be procured to be planted on the Moravian Mission premises, so as to encourage people to cultivate hard woods which were getting so scarce. It was proposed and unanimously agreed upon that a committee be formed for the purpose of drafting petitions for the improvements of the roads leading into the Moravia, Alston and the neighbouring districts. It was agreed that a petition be sent to the Government beseeching them to have the road leading from Christiana through Moravia looked after at an early date. The pruning of coffee was next dealt with by the Instructor. He also urged the members to be in readiness for the judging of the Barbecues to come off in February next. He also advised the members to look after their animals more closely and how to treat them as "Foot and Mouth" sores were troubling them in some parts of the parish. The pruning of bananas was also dealt with. A vote of thanks was conveyed by the President to the Instructor for his invaluable services. He suitably and briefly replied. The National Anthem terminated the meeting.

J. N. SIMPSON, Secretary.

ST. JOHNS (St. Catherine).—A regular meeting was held on the 10th December. Ten members, including the Instructor were present. A letter from the Parent Society relative to the representative of this Branch at the Half Yearly Meeting in January next was read. The contents of a circular relative to contributions to the War Fund were debated. It was finally agreed that the Treasurer find out the amount to the credit of this Society in time for next meeting in order that something definite might be done. Mr. Mossman then delivered an interesting lecture on the consequences of the War. This was listened to with rapt attention. He pictured the sufferings of those at the front as well as the wants of the orphans and dependent widows. He also gave a review of his past lecture and urged all to plant the sugar cane largely, promising to procure mills and boilers for them until they had reaped their crops, then these could be paid for. The Secretary in moving a vote of thanks regretted that there were no available lands for cane cultivation, and unless the authorities do something to relieve the situation in the near future, there will hardly be anything like cultivation in this district.

S. A. BANTON, Secretary.

NAIN (St. Elizabeth).—The meeting was held at the usual place on the 11th December, 1914, in the afternoon. Mr. H. W. Lynch, a Vice-President, occupied the Chair. At Roll-call thirteen members answered to their names. Mr. E. J. Smith, Instructor, and the Secretary were present. Correspondence from the General Secretary respecting the Half Yearly Meeting of the Society was read and commented on; as there was no fund in hand to meet the expenses of a Delegate to the next Half Yearly General Meeting, it was agreed that next year and in future, this Branch should set aside a part of its finances to meet the expenses of a delegate to these Half Yearly General Meetings. The Rules governing the sale of Crown Lands as reported in the newspapers were gone through and discussed. At this stage of the meeting, the business on hand was suspended, and the following Resolution was moved, seconded, and agreed to, viz: "Resolved that this meeting of the Nain Branch Agricultural Society place on record its deep regret at the loss which this Parish has sustained through the death of the Hon. J. M. Farquharson, Custos of St. Elizabeth and Member of the Legislative Council, and that the sympathy of the Branch be tendered to his bereaved wife and children." In seconding this Resolution, Mr. Smith said, among other things, that "our late Custos' place will not, and cannot be easily filled." A second Resolution was agreed upon by all, as follows: "Resolved that the meetings be held bi-monthly, and that the next meeting be held in January next, and then every two months thereafter." The meeting was then addressed by Mr. H. W. Lynch. His topic was "Rats and Mice." He showed that not only were these pests the medium of every foul and deadly disease or plague, but that they were the greatest enemy we have throughout the island; he showed that if the destruction caused by them in each family in the island were valued at even a penny per day it would amount to an exceedingly high sum. In

moving a vote of thanks to Mr. Lynch for his address, Mr. Smith spoke approvingly of the advice given. The Secretary reported 5lbs. "Paris Green" had been received from the General Secretary for the purpose of destroying caterpillars in the districts, which were destroying plants of all kinds. The Instructor gave instructions respecting its use and advised very careful handling. One of our Authorized Persons complained of not getting his pay for work done for three days in respect to a prisoner convicted. He was advised to get the proper payment form filled up and then present it to the Clerk of the Courts. At 5.45 p.m., the meeting was brought to a close.

Sgd. The Secretary, Nain Branch.

SMITHVILLE (Clarendon).—The regular monthly meeting of this Society was held on the 11th December, 1914. There were present: Messrs. W. A. Bryan, (President), F. McLymont, (V.P.), M. Goulbourne, (V.P.), the Secretary and sixteen members and visitors. The President enquired whether all the members had brought in their subscriptions towards the War Fund. As they had not all done so, he urged upon them the necessity of speedily doing so. He also brought to their notice the matter of a combined picnic which is being arranged for to take place at Mocho, in aid also of the War Fund and extended a cordial invitation to all. The Social meeting in connection with this Society was fixed for the 29th instant. Arrangements were also made for the erection of the new grindstone. The President next read a letter from the Instructor *re* the Cocoa Demonstration at Frankfield on the 31st instant, and suggested that as Smithville is a Cocoa District, the members should rise to the occasion and endeavour to carry off many of the prizes. The matter of DePass's Gully becoming a source of Public Water Supply was again brought to the meeting and the Secretary informed them that the way has been paved, for notices are being put up relative to the same matter. The subject of Cane Sugar again came in for discussion and the Secretary was instructed to write to the Instructor asking him to ascertain from the Estate Owners whether they would give the matter of purchasing the tin sugar from the small settlers their kind and favourable consideration. Mr. Robert Pink gave notice that at the next meeting he will bring forward a motion *re* a Road Headman to reside at Smithville. The President complimented the members on their turning out in such a large number, and after speaking on the work of the Society generally seized the opportunity of wishing them a "Happy Christmas." He asked them also to remember the Soldiers at the Front and the poor Belgian sufferers, in their prayers. The National Anthem was lustily sung and the meeting terminated.

J. A. EDWARDS, Secretary.

PORT ROYAL MOUNTAINS (St. Andrew).—A special meeting was held on the 12th December. There were present: Mr. Robt. Robinson, who was voted to the Chair; sixteen other members and the Secretary. It was agreed that the Secretary take immediate steps to remind the Secretary of the Parent Society that the letter to the Board of Management imploring the Board to grant relief-seeds, still remained unanswered. It was decided that the he-goat purchased from the Secretary of the Parent Society be sent for on Wednesday, the 15th instant. It was also decided to pay 2/6 each to the men, a part of the money to be paid in advance. The Rev. E. Mair explained that no definite reply has been received from the Government *re* relief works for the distressed people. The conditions of this and surrounding districts were discussed and pronounced "serious." The regular monthly meeting will take place on the 26th instant.

H. J. CROOKS, Secretary.

WHITEHOUSE (Westmoreland).—Owing to heavy rains the meeting was held on December 15th. The attendance was poor, but those present were well repaid for coming. The members signed a petition for a telephone service. Instructor Somerville then delivered a lucid and interesting lecture on the diseases of plants. He dealt with scale insects, the coconut diseases, and rot in cacao heads. He gave simple directions as to the treatment of the several diseases and impressed on all the necessity of prompt action so as to save the trees that are not badly gone. He was thanked for his fine lecture. A discussion on Rats is on the Agenda for next meeting. Several members reported the good results of keeping corn by applying Naphthaline. Meeting closed with the National Anthem.

M. HEWITT, Secretary.

MAHOE HILL (St. Mary).—The monthly meeting was held in the Schoolroom on Tuesday, 15th December, at 4 p.m. Present: Rev. T. Lawrence, President; the Treasurer, six other members and the Secretary. Letter from the Secretary of the Parent Society referring to the Half-Yearly Meeting of the Society, to be held in January, was read and considered. The Secretary was chosen as Delegate. Matter about Prize-Holding was considered as there were two applicants. Others said they could not do so as it requires a good house on the land, before one can compete. The Secretary was instructed to make inquiry. Resolutions: Moved, seconded and carried:—To remind the Hon. R. P. Simmonds of his promise to ask the Governor to put on the estimate money for improving the road next year. Moved, seconded and agreed:—That the attention of the P.W.Dept. be called to the inconvenience caused to pedestrians when the Brooks on the junction road between Broadgate and the U.M.F. Church are flooded or flowing strongly; and asked that stepping stones be provided. Next meeting on Thursday, 7th January, to be held at Broadgate. Matters relative to the Half-Yearly Meeting will be considered. Meeting closed with National Anthem.

W. A. SIBBLES, Secretary.

PORUS (Manchester).—The usual monthly meeting was held in the Church Schoolroom on December 17th, 1914. Present were: S. A. Hendricks, Esq., (presiding), Mr. Thomas Powell (Instructor), the Secretary, and thirteen members. Arising out of the minutes: the War Fund; the President explained that it was no fault of the Treasurer, Mr. Lindsay, why it was not published in the newspaper. The question of authorized persons was brought up by the Rev. Somerville, but no report was sent in by any of them. It was moved by C. Rowland and seconded by A. S. Rose that Mr. Samuel Robert, a member of this Branch, be recommended as an authorized person for the Comfort District, Williamsfield P.O., which was agreed to. The Instructor gave an address, in which he said that the sweet potato would be a more profitable concern in this locality than the Irish potato and the latter would require plenty of manure, and in planting the sweet potato you should not take slips promiscuously, but good tubers should be selected and set out, and take slips from those and plant out, which would mean an improvement in the bearing. The land should be forked and bedded and planted out fifteen inches apart. The President corroborated the Instructor's statement; he has tried the bed system and he got very good results. A vote of thanks was moved for the Instructor by the President, which was unanimously carried. As this would be the last meeting for 1914, the President availed himself of the opportunity of wishing the members a merry Christmas and a Happy New Year; this brought the Meeting to a close.

C. ROWLAND, Asst. Secretary.

PRESYON (St. Mary).—The monthly meeting was held on Friday, 18th December, 1914; Mr. J. Parodie presided. V.P. The Secretary read letters from the Superintendent at Hope re cane tops, and from the Secretary of the Jamaica Agricultural Society re amount paid in to War Fund. Owing to the severe drought and the war on the European Continent, food and money are rather scarce as all work is being practically shut down. Seeing the critical position in which the people are in, financially and otherwise, relief work was considered necessary; a letter was sent to the Parochial Board asking that Road No. 4 be taken over as a main road so as to afford relief work, with the request that the same be forwarded to His Excellency the Governor for decision. Mr. Amiel asked if the Prize Holding Competition for the Preston district could not be deferred to February, 1915, instead of January, so as to afford the competitors a little more time to attend to their holdings. The Secretary was asked to write the Instructor for the district on the subject. The grindstone that was bought for the Society has been put up and is in use. The Chairman suggested the procuring of a Spraying Machine, which may be essential to the members. The suggestion was considered important. Mr. Alex. Clarke's motion on the extension of time for the repayment of loans was discussed. Borrowers are experiencing much strain to meet the repayment of their loans as there is no means of realizing to satisfy these demands and crops next year will be late. It was agreed that the borrowers form a committee among themselves and draft a letter to the Loan Committee asking that body to extend the time for the repayment of loans. Next meeting 8th January, 1915.

I. M. WILLIAMS, Secretary.

The Journal

OF THE

Jamaica Agricultural Society.

The more people do the more they can do : he who does nothing renders himself incapable of doing anything ; while we are executing one work we are preparing ourselves for undertaking another.

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No. 2.

BOARD OF MANAGEMENT.

The usual monthly Meeting of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 11 North Parade, Kingston, on Wednesday, the 20th January, 1915, at 3.15 p.m., the usual date and hour, the third Thursday of the month at 11.40 a.m., being reserved for the Half-Yearly General Meeting. Present: His Excellency Sir Wm. H. Manning, K.C.M.G., C.B., (presiding), Sir Jno. Pringle, K.C.M.G., Hons. L. J. Bertram, D. Campbell, Geo. McGrath, R. P. Simmonds and S. S. Stedman; Messrs. P. C. Cork, C.M.G., A. W. Douet, H. Q. Levy, A. C. L. Martin, E. W. Muirhead, Rev. W. T. Graham, and the Secretary Jno. Barclay.

The minutes of the previous Meeting having been printed and circulated, were taken as read. Mr. Levy called attention to the fact that he had sent a telegram apologising for his absence at that Meeting and Mr. Muirhead said he had written to the same effect and these were not mentioned. With these additions the Minutes were confirmed.

Apologies for Absence.—Apologies for absence were submitted from the Director of Education, who was absent in the country on sick leave, from Mr. Craig, who was ill and confined to bed, and from Messrs. Conrad Watson and Archibald Spooner, who could not attend.

Matters arising out of Minutes:—

(a) *Panama Disease of Bananas.*—The Secretary submitted C.S.O. Paper, No. 19881, being a letter from the Director of Agriculture to the Colonial Secretary, of date 24th December, 1914, *re* Panama Disease.

The Secretary said that immediately he had received this letter which was marked 'Confidential', he had sent a copy direct to each member of the Board asking (1) whether publicity should be given to every case by Gazette notices and Newspaper notices, or (2) partial publicity by local notices where cases might occur, or (3) prompt and drastic measures of control under the proposed new Law as drafted by the Society and submitted to the Government.

After full discussion it was decided, that if the proposed new Law was passed, there would be no need for any public notification as the disease could be dealt with promptly and effectually. The Secretary was accordingly instructed to inform the Government, that the Board suggested, that as the proposed new Law provided for immediate and drastic measures of control there would be no necessity for any other measures; but if the Law was not passed by the Legislative Council in its entirety, the matter might be again referred to the Board immediately afterwards for consideration.

(b) *War Gifts.*—The Secretary said he had hoped to be in a position to send at least 1,000 boxes of Oranges and Grapefruit but there had been no steamer available during the month of January. The

S.S. "Chagres", however, would be leaving on the 8th February, but the United Fruit Co. had informed him that they could only take at the most 500 boxes and he was arranging for this quantity. The Government had authorized him to use the Preserve Jars in the care of the Permanent Exhibitions Committee to send gifts of Preserves, and he was also arranging for some to be sent. He had received a letter from the C. S. O. acknowledging the first shipment sent on November 9th per the S.S. "Chagres" (No. 163-19885/14 of date 6th January, 1915) and stating that the consignment had arrived in good order and had been handed over to the West India Committee, who had kindly undertaken to effect the distribution. He had also received acknowledgments from the West India Committee and they had sent on Press cuttings and acknowledgments from various Hospitals throughout the United Kingdom. He had heard privately that the 964 packages of Oranges and Grapefruit shipped by the S.S. "Aracataca" on the 22nd November had arrived in good order but he had received no official acknowledgment yet.

(c) *Resolution re Sugar*.—The Secretary said that the question of sending a Resolution to the Imperial Government asking for the exemption of West Indian sugar from duty similar to the preference allowed in respect to home grown beet, had been referred to the Staple and Minor Products Committee, and Mr. Spooner had prepared a Resolution which that Committee had approved of, but the majority of the members suggested that the present time was inopportune and that nothing should be done to hamper or incommode the Imperial Government at this time in any way.

After discussion the Board decided to inform the Government to this effect and ask that the matter might be deferred for 6 months and be submitted to them again at the end of that time.

(d) *Foot and Mouth Disease in U. S. A.*—The Secretary said he had been asked by various penkeepers to bring before the Government the question of prohibiting the importation of grain as well as animals, fodder and litter into Jamaica and to impress upon the Government the necessity of seeing that the prohibition was strictly enforced at the outports. He understood that this particular matter had been before the Government and it had been decided that there was no necessity to prohibit the importation of corn and oats. The C. S. O. had also replied that strict injunctions had been given to enforce the prohibition at the outports. He had been trying to get up-to-date information from the United States with regard to this Disease there, but on looking over some prominent Agricultural papers just received he found that there was hardly any mention of the disease whatever. He understood, however, that the disease was expected to be entirely got under with the advent of severe frost in addition to the drastic measures being taken by the United States Government.

(e) *Contagious Diseases Animals Law*.—The Secretary said that at the last Meeting Mr. Craig had brought up the matter of a local epidemic of a Foot and Mouth Disease among mules that prevailed in his district—not the real Foot and Mouth Disease. The Inspector of Police for Clarendon had telegraphed to the Director of Agriculture asking for the Government Veterinary Surgeon to be sent down to investigate and give advice; the Director had replied that as this disease was not on the schedule of diseases under the Contagious Diseases of Animals Law, the Government Veterinary Surgeon could not be sent unless on payment of a fee of £1 per day and his travelling

expenses. Mr. Craig thought that as a layman could hardly say with certainty what any epidemic disease was, it should be the duty of the Government Veterinary Surgeon to be sent to investigate and report.

Mr. Martin said that he also felt that there was something about the Contagious Diseases of Animals Law that might be remedied. Where an epidemic broke out among cattle the symptoms were not always plain; a local penkeeper could not say with certainty what the disease really was, and if a responsible person reported that an epidemic had broken out showing symptoms similar to some disease under the Law, the Government Veterinary Surgeon should be sent down to investigate the matter in the interests of the live stock industry of the Island.

Mr. Cork said there was only one Veterinary Surgeon in the employment of the Government, and it would not be possible for him to obey all calls from penkeepers when there was disease among their stock.

The Secretary said he had some cases in point brought to his notice. Three districts had called his attention to the fact that there was an epidemic of hog sickness clearing off scores of their pigs; in one small district about 50 had died. Two of these districts were widely separated, one being in the middle of St. Ann and another in Southern St. Elizabeth. Swine Fever came under the Law but what local people could state with certainty whether this disease was really Hog Cholera or say Swine Plague?

Mr. Stedman said he had seen from an advertisement in the Press that in the new appointments of a Government Veterinary Surgeon no private practice would be allowed. Surely it would be better to make the salary less and allow private practice so that the new Government Veterinary Surgeon might gain larger experience and the country penkeepers have the benefit of his services.

The President said he did not recollect having any knowledge of this before but he would look into the matter. He was in sympathy with the idea that if there was any epidemic disease of animals in any part of the Island the Government Veterinary Surgeon should be sent down to investigate. In the case of such epidemic breaking out, the Colonial Secretary should be notified and an order would be given in the case of an epidemic among stock just in the same way as was done in respect to cases of Infectious Diseases among Plants.

The Secretary was directed to bring these matters to the notice of the Colonial Secretary.

(f) *Regulations for Sale of Crown Lands.*—The Secretary said that at the last Meeting of the Board a Special Committee had been appointed to go over the Rules governing the sale of Crown Lands, which had been published in the Gazette, and possibly suggest amendments. The Committee had met at 2 o'clock that afternoon, but had not finished with their deliberations when the hour for the Board Meeting came. He had, however, been instructed to type out the revisions and recommendations and circulate them among the members and he hoped to submit the whole matter in proper form at the next Meeting of the Board.

(g) *Co-Operative Marketing of Produce.*—The Secretary said that a Special Committee had been appointed to consider whether anything could be done in the way of Co-Operative Marketing of Produce, a matter that had been brought before His Excellency by the Chairman of the Agricultural Loan Societies Board who referred the question

to the Society. The Committee had met that morning and had gone into the subject fully. They thought the time was ripe to make a start on practical lines and that they might commence with the coffee industry as the most needful and likely. The Committee had deputed Mr. Arnett to make enquiries in St. Ann as to a suitable district, the amount of coffee available, and whether the people would respond by taking shares in a local Co-Operative Society which would be under the auspices of the Parent Society. He (the Secretary) hoped to bring the matter before the Board in a concrete form at the next Meeting.

Secretary's Half-Yearly Report.—The draft of the Secretary's Report for the half year—1st April to 30th September—which had been circulated to the members of the Board was submitted and approved of to be put before the General Meeting the next day.

The following letters from the C. S. O. were submitted:

(a) *Re Estimates.*—

No. 17079-19739.

31st December, 1914.

"I am directed by the Governor to acknowledge the receipt of your letter, No. 5706, dated the 21st instant, and to inform you that His Excellency has approved of the estimates of your Society for the year 1915-16 as submitted."

(Sgd.) G. M. WORTLEY,

Ag. Asst. Colonial Secretary.

(b) *Banana Meal.*—

No. 9-17533.

2nd January, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter, No. 4836, dated the 13th November, conveying the request of the Board of Management that experiments may be made at public institutions in the use of banana meal as a food and offering to supply a sufficient quantity of the meal free of charge for the purpose. I am to inform you in reply that enquiry has been made as to the practicability of having such experiments made at the Public Hospital and the Lunatic Asylum, but that the Superintending Medical Officer has pointed out that in neither of these institutions would it be possible to arrange for a fair trial of the food value of the meal. Enquiries have also been made with a view to conducting such experiments at the Industrial School at Stony Hill and the Reformatory Branch of the St. Catherine District Prison, but the Inspector General has reported that it would not be advisable to carry out such experiments at these institutions, as banana already forms a considerable proportion of the ordinary diet of the boys.

"His Excellency regrets that the conditions at these public institutions do not appear to permit of a satisfactory test of the nutritive quantities of the meal, and I am to suggest that the authorities at Alpha Cottage Industrial School might be asked if an experiment in the use of the meal could be made at that institution."

(Sgd.) ROBT. JOHNSTONE,

Actg. Colonial Secretary

The Secretary said he had written Bishop Collins with regard to having experiments in Banana Meal tried at the Alpha Cottage Industrial School; the latter had asked first for the comparative analyses of Banana Meal and Cornmeal, which he had supplied, and experiments would likely be carried through at Alpha Cottage. The trouble in getting experiments tried with Banana Meal appeared to be that green bananas were at this time of the year so very cheap that they were largely used in place of yams.

(c) *Re Lititz Farm.*—

No. 17078-19684.

31st December, 1914.

"In compliance with the request made in your letter, No. 5665, dated the 21st instant, I am directed by the Governor to forward herewith copies of reports made on the Government Experimental Farm at Lititz from the report for the period ending the 30th November, 1914 to date."

(Sgd.) ROBT. JOHNSTONE,

Acting Colonial Secretary.

The Secretary read the Reports on the Lititz Farm for November and December.

Cotton Shipped from Experiment Grounds.—The Secretary said that he had received through Mr. Conrad Watson a report from the British Cotton Growing Association on the Cotton grown on the Experiment Grounds, and shipped. The report on the Sea Island was as follows:—Bright, medium length, fairly stained, value 12½d. to 15d. The report on the Egyptian was:—Good colour, rather irregular in length, value 9d. nominal. From the Experiment Grounds, 1,599 lbs. of seed cotton had been sent to the Ginnery, and from this 450 lbs. of lint had been shipped. From the Instructor's own plot 810 lbs. of seed cotton had been ginned and 225 lbs. shipped. This cotton, however, would probably have to lie in Manchester until the war was over. The report on the Cotton was considered promising.

Prize Holdings Competition.—The Secretary said that the parishes which should fall into the next round of the Prize Holdings Competition were:—St. Andrew, Clarendon, St. Elizabeth and Westmoreland. He suggested that the ordinary Competition should be gone on with this year, as so far as he had learned and seen he did not think that the Special Competitions being held in Manchester and Hanover were so generally useful as the Prize Holdings Competition. He was, however, making enquiry of the different Instructors as to the position in each parish.

Cottage Holdings Competition.—The Secretary submitted Report by the Judges, Messrs. Cradwick and Wates on the Cottage Holdings Competition held in Portland as an experiment. There were 37 holdings judged. The Secretary read the names of the prize winners.

Names.	Addresses.	House		Gates and Fences		Sanitation		Vegetable Garden		Flower Garden		Per Crops		Stock		Total	
		Max: 20	Max: 15	Max: 20	Max: 15	Max: 20	Max: 15	Max: 20	Max: 15	Max: 5	Max: 15	Max: 10	Max: 10	Max: 10	Max: 10	Max: 100	
Chas. Patterson	Priestman's River	16	13½	19	15	3	13½	8	88	—1st prize:							
Mrs. E. Duncan	" "	17	12½	15	15	3	13½	9	85	—2nd							
D. Webber	" "	17	13½	15	13½	5	9	9	82	—3rd							
Alfred Taylor	Fairy Hill	20	10	20	4½	5	12	9	80½	—4th							
E. Brooks	Priestman's River	16	13½	18	11	4	6	8	76½	—5th							

He noticed that only 4 of the 37 competitors had not a vegetable garden and only 3 had not a flower garden. He thought it would have been an exception a few years ago to find any regular vegetable gardens. (This Report will be published in the March Journal.)

Mr. Stedman said he had a run through the district where this Cottage Holdings Competition was being held and he was astonished to see the great improvement in the cottages through the impetus given by this Competition small as the prizes were and the Competition reflected great credit on the Instructors.

The President said he was much interested in these Competitions and thought them of great value. Each year he was in the Island he would give £5 to further such a Competition, the Board of Management to decide where the Competition should be held.

School Garden Competitions.—The Secretary reported that the entries for the School Garden Competitions were as follows:—

Corn growing competition 99; Guinea-corn growing confined to Southern St. Elizabeth and Southern Clarendon 12; Sea Island Cotton confined to Southern Clarendon and Southern St. Elizabeth 11.

Bitter Oranges.—The Secretary said that he had received the following letter from the Imperial Extract Co., of Toronto:—

December 28th, 1914.

"The writer had the pleasure of visiting the exhibit at the Toronto Exhibition, and enquired about bitter oranges. Since that time we have also been in communication with two different parties in Jamaica and have actually received three separate small sample shipments of bitter oranges.

We would be very glad indeed to place our orders for this fruit in Jamaica instead of Spain, but we regret to report that, in our opinion, these oranges are not equal to Seville. We have the last two sample shipments on hand now, and will be able to make exhaustive tests of them in the near future, so that we should not say very much on the subject at the present time."

(Sgd.) F. W. SHIRRIFF.

The Secretary said he could not find out who had sent these samples of bitter oranges and he was afraid there was something wrong because when it came to making marmalade our oranges had been reported on very favourably by big marmalade firms in Scotland and England, when he had shipped experimental lots in 1906. If we could get a trade in Canada it was so near that the fruit would carry well. He would ask the Board to allot him a small amount to enable him to ship 6 boxes of bitter oranges which Mr. Muirhead might provide so that they would be carefully selected.

Mr. Muirhead said that the trouble probably was that Seville-sweet oranges had been sent along with the Bitter oranges; they were very similar but the Seville sweet were not suitable for making marmalade.

The matter was left to the Secretary and Mr. Muirhead.

Instructors.—The usual Reports and Itineraries of the Instructors for the month of December were submitted and directed to be circulated to the Instructors Committee as usual.

Statement of Accounts.—The monthly Statement of Accounts was tabled.

New Members.—The following new members were elected:—

Walter Graham, Jinja, Uganda.

Thos. R. Towns, Holguin, Cuba.

J. A. G. Smith (Barrister) 14 Duke Street, Kingston.

A. Knox Wright, Wentworth, Port Maria.

The Meeting adjourned until Thursday, the 18th February, 1915, at 11.40 a.m.

WHITE FLY OR "BLACK SCALE."

(By S. F. Ashby, Microbiologist.)

During the last two years, no doubt favoured by the drought, a black shiny scale-like insect has become very prominent in the under sides of the leaves of all species of citrus on the lowland plains. This insect is not a true scale but belongs to the family of the white flies (Aleurodidae) one species of which (*Aleurodos citri*) has caused so much loss to orange growers in Florida of recent years. Like the Florida white fly the 'black scale' is not a native of America but has been introduced from the East in recent times; as it is also found on mango leaves it was probably brought here on mango cuttings from India within the last twenty years.

Life History.—The eggs, about 50 in number, are laid in the form of a small round coil on the under sides of the younger leaves; they are sausage shaped, at first white, than pale brown with a mottled surface and attached to the leaf by a short stalk at one end. At the end of two weeks they split along the back and a white larva emerges with red eyes, short feelers and three pairs of legs; it crawls sluggishly away to a point near the egg coil and becomes fixed, turning rapidly darker and finally black; it is narrow oval in shape with a marked median rib and bearing a few long recurved spiny hairs; near the hind end is a short semi-circular funnel—the vaciform orifice which is present in all members of the family.

The insect remains in this first larval stage for about ten days; the skin is then moulted and a larger form replaces it, this second larval stage is broader with rigid spines and has a marked yellowish patch on the anterior portion; after eight days the skin is moulted and a still larger form of similar shape and appearance is found; this third larval stage lasts about eleven days and is then replaced by a much larger blue black shining and very spiny stage—the pupa. It is broad oval in form, strongly convex and the margin bears blunt teeth above which a line of white waxy secretion develops; this describes the form of the female pupa, the male being smaller, narrower and more boat shaped. The insect remains in this stage for at least three weeks until a T shaped split on the forward region allows the perfect insect to emerge gradually; it remains stationary for a time till the skin and wings have dried and toughened. The adults are often found in numbers on the under sides of the young leaves at the ends of the branches. The two pairs of wings are slaty blue (due to waxy bloom) or smoky black with a few white marginal spots; the body is rosy red, the eyes dark red or chocolate and the feelers yellowish; in the female the abdomen is broad and large and ends in three short spines; while in the male it is slender, narrowing behind and ending in a pair of stout forceps with a siletto between them; the body is about $1\frac{1}{2}$ mms. long and the spread of wings $3\frac{1}{2}$ mms. (1 inch=25 mms.) Unlike the male scale insects both sexes of adult 'black scale' have two pairs of wings, and like the rest of the family show a vasiform orifice on the back of the abdomen near the end. The 'black scale' has six stages in its life history; the egg, three larval, a pupal, an winged adult. During January to March, 1914, the complete cycle from egg to egg occupied at least nine weeks. In the warmer months it would be more rapid so that at least five breeds are produced in the year, development being continuous and overlapping as there is no period of hibernation in this climate.

Injury.—The colonies of larvae and pupae pierce the leaf and suck the sap without causing any perceptible yellowing; if yellow spots show through the leaf over a colony it is due to true scales which are often present with the 'black scale' as if attracted to the colonies; the true scales in question are the purple mussel, the orange nipple (Chr. aendium) and the West Indian red (Asp. articulatus). The colonies of the 'black scale' even when quite free from true scales sometimes cause a marked buckling upwards of the leaves and probably on growing leaves some deformation at the margin. Honey dew is excreted in small amounts and causes a development of black blight on the upper sides of the under leaves but not to the same extent as is due to some other white flies and true scales. Severe infestation checks growth and must have a marked effect on the setting and size of the fruit. *No special parasite* except the fungus at Harkers' Hall has been found on this insect in Jamaica as yet though one or more such would be certainly present in its native home in the East. Artificial means must therefore be relied on for its control here. Lime sulphur spray has not been very successful. Kerosene emulsion, or better still a heavy oil emulsion is more likely to succeed; the three larval stages are probably the most susceptible especially when moulting.

It is important to bear in mind, that the insect also infests the mango trees, which may be a source of new infection on citrus, after the latter has been effectively sprayed.

Mr. A. L. Qaaintance of the Department of Agriculture, Washington, a leading authority on the family, places the 'black scale' in a new genus so that it will be known as *Alcurocanthus woglumi*.

To judge from some of Mr. Hanson's spraying trials, Kerosene emulsion, paranaph—kerosene emulsion, and 'scalecide' kill this insect; the spray should be repeated three weeks later.

:o: HOG CHOLERA.

"Hog Cholera is an infectious malignant disease due to the action of a bacillus in the intestines. The most prominent symptoms are loss of appetite, fever, discharge from the eyes, purplish colouring of the skin and constipation, followed by a profuse diarrhea, which persists until death. Affected animals usually show a rise of temperature 1 to 3 above normal, but this symptom is frequently absent. Sick hogs are dull and lie quietly in a corner or huddle together, usually hiding the head under the bedding. The colour of the discharge during diarrhea of hog cholera depends upon the kind of feed. A slight cough is often noted. The discharge from the eyes is watery at first, but later becomes thick and yellowish. The gait is staggering and uncertain and the animals have a gaunt appearance, with arched back. The symptoms however vary to a great extent in different cases.

The mortality from hog cholera ranges from 80 to 90 per cent. In acute attacks the animals may die within a few days while in chronic cases the disease may extend through a month or more. The spleen becomes enlarged and soft. The large intestines may show slight hemorrhages. In the chronic form the intestines become ulcerated. In some cases, however, a general congestion and reddening of the whole mucous lining of the large intestines take place.

There is no satisfactory medicinal remedy for hog cholera. Many patent medicines have been widely advertised as cures for the disease. Careful tests with such remedies indicate that they are worthless. Good tonics may render hogs less susceptible to the disease. When an outbreak occurs all healthy animals should be removed from the sick and exposed hogs and should not be allowed access to the same food or water supply. The carcasses of dead animals should be buried or burned and infected pens should be thoroughly cleaned or burned. Animals from suspected localities should be quarantined until all suspicion has passed.

There are at least 3 infectious swine diseases of a malignant nature, hog cholera and swine plague and swine erysipelas. In the majority of outbreaks the first 2 of these diseases occur simultaneously. The distribution of the 2 diseases is about the same, but hog cholera is perhaps the most common.

Experiments have shown conclusively that a perfect disinfection of pens after an outbreak of hog cholera is impossible. Infected pens and refuse should therefore be burned, and the grounds should not be used for hog yards for several months.

Swine plague is an infectious disease resembling hog cholera and frequently occurring in combination with the latter. In swine plague the chief seat of infection is in the lungs, and some form of pulmonary affection is nearly always the direct cause of death. Natural infection with swine plague takes place through the air passages, while in hog cholera infection occurs through the feed. A reddening of the skin indicates hog cholera rather than swine plague. It is often impossible, however, to distinguish between the two diseases, except by a microscopic study."—Bulletin, U.S.A.

As is stated above where hogs have died, presumably from any of the diseases mentioned above—Hog Cholera or Swine Plague—or at any rate where there is or has been recently an epidemic of deaths among pigs, we recommend that any pigs that survive should be kept apart for some months. It would be expensive to buy sufficient disinfectants such as Jeyes or others mentioned in this JOURNAL to go all over the yards or wherever the pigs had been running. A simple and easy disinfecting agent for yards and one that serves the purpose, is to spread lime over them. A still cheaper and convenient disinfectant, where bush and wood are plentiful, is to spread some kind of trash or sticks over the yard in the pig pens and burn them over. The yards need not be done all at once, as that would make a big burn and a big smoke, but every day a little can be done. The lime method could be reserved for those parts which cannot be burned—where there are coffee, fruit trees, etc. All pigs that are left after an epidemic of the diseases mentioned, will carry the germs in them, and if there are any favourable circumstances the disease may again develop. Each hog should be dosed for two weeks with a good tonic powder containing iron. Everybody has at hand Castor Oil and Jeyes, and a dose according to the size of the pig should be given. A young pig, of about 2 or 3 months will take a bare teaspoonful of Jeyes in 2 tablespoonsful of Castor Oil, while a pig of 200 lbs. weight will take half a pint bottle of Castor Oil with a tablespoonful of Jeyes in it, well shaken up. It is easier, however, to give Epsom Salts in sloppy food to the pigs, sweetening it to hide the taste of the Salts, along with a good tonic powder, as drenching a pig with Castor Oil is no easy job.

POTATOES.

THE CULTIVATION OF IRISH POTATOES.

In the Agricultural Gazette of New South Wales for October, there is published a report on the trials of different varieties of Irish Potatoes against each other in different parts of the State—North, South and West, where very different climate conditions prevail. It has to be borne in mind that New South Wales is 75 times larger than Jamaica. We give some particulars of some of these experiments because the climate more nearly approximates our upland climate where potatoes are chiefly grown commercially. In a late JOURNAL we quoted a return of 17 barrels for one planted as about the best we have known here. We said a return like that was good here in comparison with average yields, but nothing compared with the return per acre in the United Kingdom where 5 tons per acre was a small return and yields of 20 tons were common. In New South Wales the best return from a trial acre was 7 tons, 14 cwt., 18 lbs., and the poorest 2 tons, 18 cwt. 2 qrs. 4 lbs.

Now our best return of 17 barrels of say 160 lbs. weight is only 2,720 lbs., or less than $1\frac{1}{4}$ ton.

How is this in a country where, and sometimes on the same soil, bananas give such large yields? We have known the best alluvial soils, which gave a tremendous return in bananas, absolutely fail to give more than 4 barrels of Irish Potatoes for 1 barrel planted, even though grown in the cool weather. It is because, as we have often explained, the potato makes its growth and yield in 3 months and must therefore have every condition favourable—fine soil, rich soil. If we take the weight of the average barrel planted here to be 160 lbs. (and this allows for shrinkage and rot of the average barrel from Halifax) and we reaped a crop of 14 barrels for each planted, that would only be one Imperial ton of 2,240 lbs. To get a return of five tons, which a farmer in the United Kingdom would think very poor, we should require to get 70 barrels for one planted. Any potato grower here who got that would be so astonished that he would ask us if this was the record of the world.

However, joking apart, can such a return be got here? When we compare the method of growing potatoes here in comparison with places where 5 or 10 times the return is got, we do not consider that our returns are so poor as the figures indicate. Very few potato growers here ever put any manure at all on their land; most simply take land that has been lying fallow under bush and grass for a short time (the return got on old pasture land) while some think that they can grow Irish potatoes in the way they grow sweet potatoes, yams and cassava on land that has been cropped intensively with these crops for many years. Many is a vague word, but certainly many of the red and light brown soils of Manchester must have been cropped without manure for over 100 years, perhaps not continuously, but nearly so.

Now compare this with the methods adopted—compelled to be adopted—by farmers, to pay their very high rents and make a living in the United Kingdom. The land there is seldom cropped twice under the same crop: most farmers are bound by their lease to plant a rotation of crops, in some parts a five years' rotation, and in others a seven years' rotation; that is, the same crop is not grown on the same

land for 5 or 7 years. The land being under tillage every year never gets hard and baked—unless in the cases where land is put under pasture for a period; it is ploughed deeply, perhaps left all the winter lying ploughed; then ploughed again, harrowed and harrowed again and again. For potatoes not less than 10 tons of animal manure is applied per acre, that is 10 big cart loads, then 5 cwt. or so of artificial fertilizer is applied per acre. The animal manure is usually spread and ploughed in and the fertilizer applied when planting, with another application when the potatoes receive their first hilling.

The expense is big but the returns are big in proportion. In New South Wales, Australia, the planting distances and depths vary, but the average is in furrows or rows 2 ft. 6 ins. apart, sets planted 18 to 20 inches apart in the row, 4 to 6 inches deep. One of the mistakes here is not cultivating deep enough, and not planting deep enough. The land ought to be cultivated a foot deep, the drills made 8 inches deep, and the potatoes planted to be covered at least 4 inches deep in the soil, even if the hilling up adds another two inches or more.

As we have often stated before, Irish potatoes being a very quick growing crop here, usually being reaped 3 months after planting, it follows, that to be productive they must have every circumstance connected with their growth favourable. They have no time to stand a set back and then make it up as other root crops common here, like Sweet potatoes and Cassava, can do. Thousands of little fine rootlets start out from the eyes when planted after two or three days; in a week these are inches long if the soil is soft and fine, and when it is also rich with plant food each rootlet absorbs moisture and with it nourishment—as much nourishment as it can get. Irish potatoes are greedy feeders. But if the soil is not fine but lumpy or hard, the very fine threadlike roots cannot bore into it to find nourishment; they may stop growing or grow feebly or many simply die off. It is a necessity, therefore, to have the soil for growing Irish potatoes soft, deep, and fine and very rich. The land for their growth should be prepared long ahead; roughly turned over to let the sun and breeze act upon the clods and lumps. Manure should be saved or collected, and kept under cover, so that the rain may not wash the virtue out of it; or the land can be penned; cows, horses, mules, donkeys and goats brought on to it at night and fed there. This is a very suitable and economical way of manuring land for our circumstances here. The land should be refined, forked or ploughed over not less than 9 inches deep; and again gone over with a plough or cultivator or fork before planting. If the manure has been collected to be applied, it can either be spread and dug in at the last refining before making the drills, or if it is in a fine state can be spread in the drills and the potato sets planted on the top of it. If there is an abundance of manure it should be spread; if it has to be economized it should be spread in the drills. In dry districts, leave the drills not quite filled up, after planting, and fill up when the plants are 4 inches up, by drawing the earth into the furrows, so that when finished the plants will be almost level. In a hot country the high ridging up used in cold countries where all the sunshine and heat possible are wanted on the potatoes, is not necessary is not, indeed, advisable here.

Now for those who mean to work systematically, a good rotation after the potatoes are lifted, is corn and peas or beans grown together. Potatoes planted on the uplands in March and April are lifted the end of June and July in time for August planting of corn and peas, then

peas are reaped within 3 to 4 months depending upon the variety, and the corn within 6 months; then beasts may be grazed on the land for a year, or until August again when a thick crop of peas will bring the land into shape for March planting of potatoes again. But no other root crop should be planted where Irish potatoes are intended to be grown, otherwise there will not be a good return, and there will be attacks of wireworms and other root pests. When enough manure is not available, a thick planting of Cowpeas is most refreshing to the land, and if cut down when in blossom and after lying a time, the rotting vines are ploughed in, we have known good crops of potatoes taken up without other manure at all.

As a rule it takes about one barrel of ordinary potatoes, planting the small ones whole and the large cut into two sets, to plant a chain; larger potatoes cut into 3 sets will go further of course.

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TICKS.

It is to be regretted, that in spite of the strenuous efforts put forth, by the Department of Agriculture and the Jamaica Agricultural Society, to wage a concerted war against the ever troublesome tick scourge, there are so many proprietors who are still using the antiquated tar brush. The ravages of ticks among cattle will be brought home when I relate an experience I had lately, and a large penkeeper in Westmoreland, has told me that at certain times of the year this is an ordinary experience with him.

A fine cow on a pen in Westmoreland began to look bad and gradually to pine away. Several doses of Red-Drench failing to restore her the owner thought it a case of tuberculosis and was making up his mind to destroy her, when on looking into her mouth he found the root of the tongue covered with silver ticks. On a further examination he found the sides of the jaw and the tender membrane near the throat also covered in patches. With great difficulty he removed them and dressed the inflamed parts with vaseline. In a few days, after being turned out in a fresh paddock, the animal began to regain condition. This experience caused the gentleman to examine the mouths of his herd and he found that in the majority of cases there were some ticks on the inside of the mouth. I believe that many of the poor looking animals to be found on well grassed pens are suffering from similar attacks.

This year the tick scourge is particularly bad in the West and I think it points to the fact that the evil is a growing one which might reach such proportions as to make profitable penkeeping difficult to achieve.

The matter is a serious one and pen-keepers in the West should take it in hand and decide upon the most thorough way of exterminating this pest.

(Sgd.) R. C. SOMERVILLE.

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FOOD STUFFS.

From the very inception of this Society in 1895 the importance of utilizing our native food-stuffs to the best advantage has been recognized, and the importance of having some kind of food-stuff which can be stored in the form of a meal or flour was also considered of particular importance.

In all cold countries, where there is a winter lasting from 5 to 8 months, some crops are grown—and necessity has obliged such crops to be grown—which can be stored in a handy form and utilized for food during the winter. In these countries, there are Wheat (first in importance), Maize (often called Indian Corn) Oats, Barley and Rye, as grain crops; and as root crops, Potatoes (called here Irish Potatoes) which are the most valuable for food; Turnips, Carrots and Beets are also stored, both for human food and also for feeding dairy cows. In most Tropical countries, however, especially those not long settled nor thickly peopled, there has been plenty of land. Nature has been kind, and the people have naturally lived from hand to mouth; there has been, generally, no necessity to do otherwise. In warm countries that were peopled early in the world's history, such as China and India, the face of Nature has been changed, forests have disappeared, and long droughts, followed by tremendous rains and floods, have often happened. The people of these countries look upon droughts as people in cold countries look upon winter. They have grain crops, the chief of which is Rice, followed by Millet, Sorghums (what we familiarly call Guinea Corn) in addition to root crops, suitable to warm countries, the most common of which are Sweet Potatoes and Cassava. Even the Bees and Ants of warm countries recognize the necessity for storing food to serve them through periods of heavy and continuous rains or of long drought, just as those of cold countries do for the winter. It is plain, therefore, that man was not intended to live from hand to mouth. Even in those parts of Tropical countries where Nature has been kind, heavy and torrential rains, lasting weeks and often months, fall, and the natives, such as the Indians along the Amazon, do store some food, particularly a meal made from Cassava known here as Farine. All over Africa, from North to South, from East to West, there are store-houses for grain. In almost every village there is a general store-house. In Africa nature in many parts has not been too kind. There have been long droughts and tribal wars, which compel the natives to make store-houses. The chief grain all over Africa is Sorghum. In West Africa, it is practically the same as what we call Guinea Corn, which was introduced here from that region. This is our White Guinea Corn. In East Africa there is a quick growing variety called Dhurra, what we call Red Guinea Corn, and in South Africa similar varieties called Kaffir Corn.

The Western Hemisphere has not been thickly peopled—such as parts of Asia have been—(we are speaking of the hotter parts) and food has been generally easy to raise and plentiful. In such parts of tropical America as have been filling up, however, and where forests have been largely cleared especially from the mountainous parts, the weather has become more and more irregular, and droughts are of more frequent occurrence than before. Even although the total amount of rainfall may be the same as in past years the earth with its springs and streams has not been able to absorb and hold the water as it was able to do formerly.

The same necessity confronts little Jamaica as has confronted China and India for centuries past. We must grow foods that can be stored. Owing to our proximity to the United States and Canada, which have comparatively plentiful lands, and large areas to grow Wheat and Corn, we have largely depended on these countries for our Wheat, Flour and Cornmeal. It is a good thing for nations to

exchange products; this is what constitutes commerce. It is quite right for countries that have many manufacturing industries to sell the products of these industries abroad and buy food-stuffs and luxuries from all parts of the world. If we in Jamaica were always able to sell our products to other countries, to good advantage, such as Sugar, Rum, Coffee, Cocoa, Ginger, Bananas, Oranges, Grape-fruit, Limes, Annatto, Logwood, Fustic and so on, we could always afford to buy food and luxuries anywhere. But we have no such manufacturing industries. We are engaged in the business of raising products, nine-tenths of which are connected with the table, that is things to eat and drink, but none of our exports are absolute necessities as food-stuffs, as Wheat and Corn are. It is our duty, in fact a vital necessity, that we should raise as much of our own food-stuffs as we possibly can, so as to be fairly independent of the fluctuations of trade. If we are dependent on other countries for our food-stuffs, it often results that we sell our products cheaply and buy what we need dear; in fact that is almost the rule. There are always conditions arising every other year that throw us back upon ourselves. From August till now, and probably for another year or more, we have been thrown back on ourselves a good deal on account of the great war. Wheat Flour is 42/- per bag; a bag of Cornmeal of 196 lbs. costs 33/ a half more than they used to be. On the other hand some of our chief products are lower in price and hard to sell for a variety of reasons. A few of our products are higher in price, especially sugar, but probably the largest number of smaller cultivators in the Island depend on Coffee, Cocoa, and Bananas for their ready money. If they do not sell these to advantage they cannot purchase the commodities in the shops. It would be prudent and economical, and we go so far as to say, a vital necessity, for the smaller cultivators to feel that they are not entirely dependent on what they may be able to sell abroad. It is of course as necessary to sell things abroad as to have home grown food. We cannot possibly live by selling things to each other alone.

We in Jamaica have food products just as valuable as products grown in other countries, and they can be stored equally well, if only we could appreciate the value of such products, and have them made in large quantities and sold cheaply, such as Corn (Maize), from which we can make our own Cornmeal; Guinea Corn, Cassava, and Bananas. Banana Meal is a product which should be regularly used. Cassava Farine is a product which should be stored in every district where Cassava is largely grown. We have often written in these JOURNALS about both products. There will always be a period when we cannot sell the enormous number of Bananas raised in this country for export abroad, and we ought to be in a position to utilize them profitably here when they cannot be sold. The subject we are leading up to, however, is the old one of Cassava Farine. From 1897 right on, this JOURNAL has printed articles on Cassava Farine. The Board of Management has had the question of utilizing Cassava in the form of Farine before it, and yet at the present time Farine is not being used in this country. There is no man who grows Cassava in quantity who should not have a barrel of Farine standing in a corner of his house, so that at any time he can draw upon it for food. Is it reasonable and sensible for a country like this to be in the position that when we want something for Porridge in the morning, we have to use Oatmeal from Scotland, or Rolled Oats or Cornmeal from the United States,

or Rice from India, simply because the people there have put these products in a dry form and are thus able to ship them thousands of miles to us? We can very easily put Cassava in the dry form of Farine. It is palatable, digestible, and nutritious.

It can be made in any ordinary iron pan that can go over the fire; but for £2, a regular Farine Pan to make a substantial quantity at once, can be had. We are again repeating some of the information which has been already published in the JOURNAL by re-publishing some of the articles that appeared in the JOURNAL from 1897 on.

(The Articles will appear in next JOURNAL.)

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CASSAVA..

SOME GOOD VARIETIES.

1. *Bobby Hanson* or *Gordon* is an early variety and matures in 9 months. It will give good results in all soils except soils remaining always wet. Grows equally well from sea level to 2,000 feet elevation.

2. *Pum-Pum* or *Bunch of Keys* is another early variety and matures between 9 and 12 months. The holes for this variety may not be more than one foot in length, but may be 2 feet wide. The tubers are generally short and stout. Hilly or gravelly land suit it better than any other soil. Planted at too great an elevation may result in tree and not tuber development.

3. *Grey Hound* is a variety of considerable growth, many and large tubers. It does not yield as much flour as the two varieties mentioned before. It matures in 10 or 12 months. Red soil is not the ideal one for it, but it suits best a conglomerate such as brown earth and brown gravel mixed.

4. *Red Jacket* is a variety of many tubers but not necessarily large. It matures in 12 months. It bears best in gravelly land of brownish appearance.

5 & 6. *Brown Stick* & *Smalling* are varieties much alike in many ways. They thrive in the same kind of soil; much humus should be in the soil where these are grown and they give very good account of themselves from a little above sea level to 3,000 feet above. The flour and starch yield from these varieties are considered the best. They are later to mature than the other varieties. In dry soils they mature between 12 and 14 months. In damp soils they mature between 14 and 18 months. I chiefly plant the *Smalling* variety. Its tubers are the largest and while the first tubers never fail to continue their development after they are a year old, other tubers go forth from the first. They seldom lose in weight however long they are kept before they are lifted.

Holes, Cuttings and Planting.—Except in the case of the Pum-pum, the holes should be not less than 2 feet (length) by 1 foot (width). The depth should be about 9 inches. These remarks apply to the stiffer soils. In fine light soils a foot square is sufficient. All cuttings should be close to a node or eye, and need not be more than 6 inches in length, the plants being shorter where the nodes are not far apart. At this time when there may be much rain, about half an inch of plant may be left uncovered and these plants should be put in slanting the tuber producing end not being more than 4 inches deep. I hope the people will not place more than one cutting or plant in each hole. There is no necessity for more.

Smithfield P. O.

E. J. SMITH.

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SULPHATE OF IRON.

The following was taken from the "Fruit Grower" of London:—

It has been found that trees treated to solutions of green vitrol, or sulphate of iron, acquire a greater increase of vitality; this, of course, increases assimilation, resulting in an extended season for the foliage of the trees—proving that iron is undoubtedly the active chemical agent in the formation of chlorophyl.

If a soil does not contain iron the plants become chlorotic and sickly. The reason for this is supposed to be that the plant loses its power to assimilate the carbon di-oxide from the atmosphere. Griffiths found that the application of potash had the effect of altering this state of affairs, and, what is of more importance at the moment, he found that sulphate of iron had exactly the same effect as did the potash. It is, therefore, argued, and we think with common sense, that the substitution of sulphate of iron for potash manures has sometimes an advantage. It has been found that the excessive use of potash is highly favourable to the development of fungi, while sulphate of iron has the opposite tendency, due to its action as a partial steriliser. Sulphate of iron may be used to great advantage even where potash manures are used, at the rate of 56 lb. per acre, or, roughly speaking, about 5 oz. to the pole. As a dressing among fruit trees, and especially where other crops are grown under the trees, we strongly advise that from 1 cwt. to 1½ cwt. be used per acre.

The spores of various diseases in the land are attacked by it, and it has a very corrosive action on the delicate membranes of insects. Those who have meadows on their places which have become badly infested with moss should, during dry weather, apply a dressing of ¾ cwt. per acre, giving the first dressing at the present time, the second in about a month, and the third in like quantity in about another month. It will be found to be one of the best dressings for clearing meadows of moss and will act as a general partial steriliser, as well as a solvent for other constituents in the soil. There are some soils which do not contain sufficient iron for the ordinary use

of plants, especially soils which are very near the chalk; on these sulphate of iron should be applied every year regularly.

Very great advance has been made during recent years in the provision of what may be termed dry powder partial sterilisers for use, not only under glass, but for the general horticulturist and market grower in the market garden proper, and these may be and are used very widely in the larger field of ordinary agriculture. One of the earliest of these powder sterilisers to which we now wish to refer was that known as Vaporite. It is not only useful in the land as a destroyer of insects, and as a fumigant having a deterrent effect on insects, which lay their eggs upon the plants, but from some of the remarkable results which we have seen where this and other partial soil sterilisers have been used, we have little doubt but that this and other powder preparations have a very direct effect upon the minute organisms which have been shown by the workers at Rothamsted and elsewhere to inhabit the soil, neutralising the work of the beneficent bacteria which prepare the food for plant life. Those who have tried dressing the soil with such active preparations as Vaporite, Vossolite, Pestite, &c., have no conception of their great aid to fertility, due, we mainly believe, to their powers as partial sterilisers when applied to the land before sowing the ordinary crops.

The various preparations on the market in use as powder partial sterilisers, or insecticides, or whatever they may be called, differ according to the various chemicals used in their preparation. Just what effect all of them have upon the minute flora or fungi which inhabit the soil it is impossible to say at the present time, but in the case of one preparation at least, where it was used on land which was very badly affected with the so-called finger-and-toe disease of brassica (*Plasmodiophora brassica*), the great benefit seen in the crop grown on the treated land was so marked that only one conclusion could be come to as to its power in dealing with this terrible disease in one or other of its stages.

It will be found that the gases given off by the specifics will drive away or keep away insects from the plant until it is thoroughly established, when it can usually take care of itself.

KEEPING SEED FOR PLANTING.

The planting season for Corn and Guinea Corn is now here. There is always a good deal of complaint that seeds do not grow because insects eat them. This is especially the case with Guinea Corn—ants will take the seeds to a certainty. We have planted Guinea Corn one afternoon and the next forenoon found the part of land planted, infested with stinging ants eating out the germs. We therefore have advised that all Corn and Guinea Corn, in fact all seeds which are subject to attacks of ants and grubs when planted, should be treated with Kerosene and Wood Ashes, and we issue a small leaflet to this effect with all the Guinea Corn we send out, for the information of those who are only now taking an interest in growing plants and those who have not previously been reading the JOURNAL.

We repeat the instructions for treating seeds. Take a quantity of Wood Ashes in a bucket or pan—any ordinary pudding pan or kerosene tin, according to the amount of seed to be planted, will do—damp this with Kerosene Oil, so that it is quite moist, but not sloppy, put the seeds in and shake round about—the seeds can even be left

in from 6 to 12 hours. If close calculation can be made and only enough Wood Ashes used to treat the seeds, they can be planted right away, Wood Ashes too, but if a large quantity of Wood Ashes has been used this requires to be sifted out from the Seeds.

We notice that, to prevent birds and worms eating oats, wheat and barley, after they are planted, there is a preparation in the United Kingdom called Corvusine which we mentioned in a recent JOURNAL, being freely used and well spoken of. We have a sample from the firm and will have it carefully tried against the Kerosene and Wood Ash method. The quantity of Corvusine to be used is 1 pint to 4 or 5 bushels of grain, according to the size of the seeds. Guinea Corn, being small would take 1 pint to 3 bushels. We see that it is preferable to mix this preparation with Wood Ashes also. We shall have to figure out the comparative cost and effectiveness as against Kerosene.

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THE NECESSITY OF MEMBERS ATTENDING THE MEETINGS OF THE AGRICULTURAL SOCIETY.

(Being a Paper read to the Porus Agricultural Society by the Rev. C. A. Lindsay.)

In presenting a paper to you on this subject, I must at the very outset ask you to disabuse your minds of the idea, if such an idea is entertained, that I have consented to write this paper because I am best qualified to do so. If you were to think so, you would in that case be paying me an unmerited and consequently, undeserved compliment, while doing so would be but a reflection on those worthy gentlemen with whom the idea of the formation of a Branch Society originated, and who, consequently, must have perceived, more clearly than the others of us, the benefits to be derived in attending the meetings of the Society and from the Society itself. Accordingly some other reason or reasons must be given for my consenting to present you this paper.

One reason for doing so, I must at once assure you, is the deep concern and interest I have in all matters appertaining to my people's welfare and consequently to the good and prosperity of our Island.

No one will dispute, I trust, that in things material the agriculture of our island should have our first thought and attention, since ours is exclusively an agricultural country. Nevertheless you will agree that not every (if many) man is a born agriculturist, therefore the way for those of us who are neither born agriculturists nor geniuses, to acquire a proper knowledge of this science is to learn it.

Now where is our local school where we may best learn of agriculture? The answer you must all give gentlemen, is this: *here* at Porus—here at this *Branch Society*. Does it need then further argument to convince you that it is very reasonable to expect you to attend the meetings of the Society and thus endeavour to learn all you can? Of course, I am quite aware of the trouble with some of you cultivators, and from my experience with them in at least 9 of the parishes, I am in a position to say here that that trouble you will find to be either conceit or the folly of thinking we can live on "past glory," or both. This conceit manifests itself as soon as you say you know all about cultivating and therefore, you do not care to hear what *others* have to say about it. Such conceit is at once shattered—knocked down, when you are made to understand that one's whole

Life here is one of continuous learning—indeed even in eternity, *there* our life will be one of continuous learning. As for living on past glory, that is seen when you say—in the days of your fathers they never took half so much trouble about the soil and yet they got ten times more out of it than many get today; but is not the reply to that, this—that we should for that very reason the more carefully consider and study this matter of the cultivation of the soil? It might happen, gentlemen, that I am somewhat straying from my subject, but all I wish to point out is this—that in many cases it is this conceit or belief that we can live on “past glory” why many of our members do not make it a point of duty—regular duty—to attend the meetings of the Society.

Gentlemen, if you agree that this Society is calculated to benefit you as agriculturists, then how can you be benefitted if you cannot see or learn of what it is doing in that direction? It must be accepted, that as members of this Society, you desire to profit from the hints, suggestions and aids given out from time to time by the Society. Now it would be a farce, and a manifestation of misdirected energy—if while the Society is giving out hints and suggestions for improved methods of cultivating and for securing the best price for our products, you keep yourselves away from the Society and still continue in the old and antiquated groove.

Already there is too much talk—and it is true talk too—about Jamaicans lacking in cohesion and cooperation. Are we never to shut the mouths of such talkers and wipe away the stigma on us, and for which we stand justly condemned to-day? If so, must we not begin at once to be united, cooperated, and show interest in our own local society, and thereby know by experience what it means when we speak of the unity, loyalty and patriotism of our Empire of which we form an integral part?

Gentlemen, this Society is no child's play—it is a society for business—and business of the greatest moment for us as agriculturists. We need therefore to come together—regularly and punctually. In doing this, you will, I trust, besides being individually benefitted, yet go on to devise and discuss some such scheme as the possibility of the Society having a plant in this town for the treatment of coffee and for the rinding of oranges.

In conclusion, let me thank you for your patience in listening to this paper, and if by it you are made to think a little more of your own interest, of the interest of this Society and consequently of that of our island generally, then the feeble attempts of the writer hereof will have been abundantly rewarded.

:O:
CORN MILLS.

A few Branch Societies have been getting corn mills from us with the object—we take it—of grinding cornmeal, but from experience of these ourselves, we find that the grinding parts are generally made of soft metal and while they do for a time to crack corn for horses and for poultry feeding, they do not grind corn fine enough. We have consequently been trying to find mills with hard metal in the grinding parts. It will be understood, however, that it takes time to test these. There are mills to be got at all prices and of all sizes. What we can get that can be worked by hand must be very light mills.

It is better however to pay a few shillings more and get one made of hard metal.

In these days when feed for stock is likely to be expensive, we would draw the attention of readers to the necessity of grinding the cob along with the corn for horse and cattle feed. We think also that the mixture would do for poultry. There are mills for doing such grinding by hand, but naturally it is severe work. There are also mills not costing very much more, fitted up for one mule or one steer to work and which can do from 600 to 1,000 corn cobs in a day.

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THE PAPAW AS A FIG FOOD.

I have been very interested in an experiment conducted by the Rev. James Carnegie, of Beaufort.

With a view of solving the problem of pig feeding, Mr. Carnegie obtained and planted out a patch of the large variety of papaw at the Mission land at Beaufort. In that seasonable district they grew very luxuriantly and bore large crops. With the ripe fruit he fed some pigs some of which were growing and some fattening. They ate the fruit ravenously and improved at the same rate as "cocoe-head" fed pigs.

This crop is an easy one to cultivate and with average seasons will bear heavily. In these days when to find good feeding for pigs, especially animals tethered or in sty, is sometimes difficult, the growing of papaw might well be tried and will be found a good solution to the problem.

R. C. SOMERVILLE.

:O:

WAR GIFTS.

Those who supplied Oranges and Grapefruit for shipment to the Military Hospitals in the United Kingdom as a War Gift, should all be pleased to hear that although the fruit had all to be packed on deck of the steamer, the s.s. "Chagres," on the 22nd October, and the s.s. "Aracataca" on the 9th November, it arrived in good order. Owing to rough weather 12 packages of the later shipment were washed overboard and 44 got sea water and went bad. We have received from Mr. Aspinall, the Secretary of the West India Committee, London, who undertook the distribution of the fruit with the authority of the War Office, 231 letters of acknowledgment and appreciation from Military Hospitals in England, Scotland, Wales and Ireland, from the very south, to Dingwall in the north of Scotland. Altogether Jamaica has sent 1,256 packages (another 500 are going this month—February). Had steamers been available we could have sent much more but we could not get any steamer during January.

Trinidad and Dominica have also been generous in sending Oranges and Limes, and the Secretary of the West India Committee in his monthly Circular, says as follows :—

(The Daily Chronicle, London) Feb. 1, 1915.

To handle 2,249 packages of fruit and to arrange for their despatch among nearly four hundred hospitals is no light task; but Dr. Jones has carried it out so well that there has been no confusion, and only a few, if any, cases have gone astray. The Port of London Authority, at the request of the Committee, have waived the dock dues, and have done all in their power to facilitate the arrangements, but the congestion at the docks has resulted in some delay in clearing inward cargoes. At Bristol, whose Port Authority have also renounced their fees, work has proceeded more briskly, and no complaints have been received of damage.

The distribution has not been confined to England, the Red Cross Society having kindly consented to receive and forward to the Continent fruit for the hospitals in France and Flanders. And in some cases requests for consignments from hospitals, receiving Belgian and French wounded, were favourably considered. Our Indian troops have not been forgotten, and it may well be imagined what delight it gave them to receive such a welcome gift from the tropics. In due course the letters of thanks which have been received will be forwarded to the generous donors in the West Indies. Meanwhile it will be of interest to publish a few typical examples which will convey some idea of the great satisfaction and pleasure which the fruit has given to our wounded soldiers. The acknowledgments include a letter from H.R.H. Princess Louise, Duchess of Argyll. H.H. Princess Marie Louise also wrote saying that the fruit arrived in good condition and were very much appreciated by the soldiers at their Xmas Dinner. The Duchess of Bedford wrote: "Will you kindly convey to the Jamaica Agricultural Society my appreciation of their gift of fruit for the soldiers in my two hospitals. The men are extremely fond of fruit and will, I am sure, be most grateful." The Hospitals Gift Committee, Aberdeen, sending their warmest thanks to the Jamaica Agricultural Society, "for their most generous and beautiful gift of fruit," said that "13 cases came yesterday in good time for the Xmas dinner. The First Scottish General Hospital fills four hospitals in Aberdeen and each one had plenty of fruit, thanks to this kind gift. The tables looked quite beautiful with the plum puddings and especial sweets." The managers of the Royal Infirmary, Edinburgh, expressed their "gratitude to our West Indian friends in Jamaica." The Royal Infirmary, Liverpool, said that the fruit was much appreciated "by our wounded soldiers, who have remarkably good appetites after the first few days. The Matron of Lady Mountgarrett's Hospital for Officers wrote that the fruit arrived in excellent condition, and that she had been asked by all the patients in the hospital to convey their very best thanks to the Jamaica Agricultural Society, adding: "The fruit will be such a boon as it is so difficult at this season to give the patients much change in that respect."

How little grape-fruit is even yet understood in this country is shown by several of the letters. Lady Georgina Vernon, of the Worcester Voluntary Aids Detachment, for example, wrote that the soldiers in her hospital considered grape-fruit "a special treat, as they had not had any before." Those in charge of the Infirmary at Stockport and County Hospital at York, had apparently never heard of this fruit at all, for both acknowledge it as "grapenuts"! Another spoke of it as "bread-fruit," while one genial secretary thanked the Jamaica Agricultural Society for their kind gift of a Xmas Tree!

To prevent misconception and mistakes we have printed 3,000 leaflets containing a description of Grapefruit, explaining its difference from the Orange, its special virtues, and how it should be eaten, and these leaflets will be sent to Mr. Aspinall, the Secretary of the West India Committee, to send out along with each box of Grapefruit. This leaflet will no doubt be read with interest by the officers and soldiers in the various Military Hospitals. As the fruit on the whole has been very good, we think that Jamaica Grapefruit and Oranges have received a very good advertisement. Of course we have not sent these War Gifts with the idea of advertising; we have sent them out of a sense of duty to do what little we can for those who have suffered in fighting for the Empire. But Jamaica Grapefruit has been made known as it never has been before.

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SEASONABLE HINTS.

SEED CORN (MAIZE).—We try to do our very best to supply good selected seed from a prolific crop and keep in mind—and we want our readers to keep in mind also—that it is not the size of cob or the size of grain alone, but yield per acre under normal circumstances, that is the best test. We have a preference, as most have, for a good cob and a good grain, but we would not sacrifice yield per acre for show purposes.

The business of supplying seed corn that can be depended upon is not an easy one. The first test of all is for fertility and vigour of growth. All samples or consignments of corn that we supply are tested in seed boxes here. Corn may germinate and yet not be vigorous so we let it grow for a couple of weeks at least to see how it gets on. Among the things that have to be considered with the cobs are size, shape, regularity, solidity and weight of grain in comparison to cob. The causes that

make us reject seed corn are a lack of maturity as shown by excessive shrinkage from the time of first weighing after drying, looseness of grain in the cob, chaffiness of grain at the tip and a dull appearance; the kernels should be clear, bright, smooth and flinty, showing when the grains are cut open, white brittle germs. A dull looking germ, cheesy in appearance, and of dark colour, is not good. Vigorous germination, however, is absolutely necessary above all things.

In experiments in the United States it was found that corn was one of those seeds that did not require to be brought from a different locality as some kinds of seed requires—that the home grown corn adapted to the locality was always best so long as it was not injured. Now even in Jamaica we have great differences of climates and soils. Upland grown corn generally does well in the lowlands but we have not found lowland grown corn to do well in the uplands. We shall, however, be making some experiments again ourselves, in growing a measured chain of ordinary red corn—selected seed however—and pure yellow corn or pretty nearly pure, and the type that is now becoming common and seems to us most prolific, which is about half and half red and yellow. Plant plenty of corn: it is an anomaly that we should at any time be scarce of this grain. Jamaica imports nearly £50,000 worth every year!

* * * * *

FOOD CROPS.—While there has been a great response to our circular to Branch Societies in the month of August, a few days after the war broke out, to plant all kinds of food crops to as large an extent as possible, long continued dry weather prevented some parishes from planting as quickly and as much as was liked; it was October before good seasons came. By March and August there will, generally speaking, be an abundance of yams and sweet potatoes even in St. Ann where long drought continued.

St. Mary is a parish that depends too much upon the other parishes for food crops: there is not much room, as a rule, the best lands being taken up by bananas. Cowpeas, however, are an excellent food crop and they go well with bananas, so these should be planted in St. Mary to as large an extent as possible as they are very sure growers and very prolific.

* * * * *

BANANAS.—If there are clusters of suckers left around the plants that are to fruit this year, they should now receive a thinning out, taking care always that the cutting edge of the cutlass is turned outwards, otherwise, damage may be done to the main stem by cutting inwards. Make particularly sure that no *cut* suckers are left to fruit—they cannot produce good bunches unless on an exceptionally fertile patch of soil. It is better, however, not to risk cut suckers.

It is difficult to say the height that ratoons should be at the present time as so much depends upon soil and altitude, the amount of cultivation given and to be given, whether the plants are in their first year or second year, or are old ratoons, and how thickly they are growing. Certainly it is better to be early than late and ratoon suckers should be about man high to fruit in 1916: in the first year of planting they might not be so high, of course, and if the present crop is forward so that it will likely be cut clean off by June, this will let more air and light in and the growth of the "followers" will be rapid. The timing of bananas is a subject that should be discussed by each Branch Society in each locality.

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SUGAR CANE.—A good deal of planting of cane is going on but much of it in a very careless fashion. The selection of cane tops is as important as the selection of seed for other crops. Thin, weedy tops should not be used if there is any choice. In some districts where drought prevailed cane tops are scarce and probably not very good, but where choice can be made good sound cane tops should be selected. Some times little cane holes are made 3 inches deep with a hard clay sub-soil; the canes inevitably grow out of the ground before long. It is better to fork the land right through and then make good cane holes leaving enough depth for a good hilling up. Another mistake is planting too close especially where canes ratoon a long time, then the field becomes a jungle. We have noted better results from wide planting between the rows, 5 ft. at least, and closer planting in the rows, say 3 ft. In this case a catch crop of Red Beans, or Black Eye Peas, or Cowpeas, should be grown between the rows.

* * * * *

SWEET POTATOES.—It is the exception rather than the rule to make any selection in planting sweet potato slips and often different varieties are mixed together. The varieties should be kept strictly apart. Everyone who goes in largely for planting sweet potatoes should plant beds of the tubers and take "draws", i.e., the slips that grow from these, for planting. If this is not done every time there is another planting it should be done at least once in two years. Some varieties of sweet potatoes can

be lifted at 5 months and on to 9 months, so when the early kinds of these varieties are lifted the later ones are not over half fit.

CASSAVA.—There is likely to be an increased price for cassava starch for some years and cassava should be largely planted. Unfortunately in most of the regular districts for cassava growing, sticks are still scarce, but as the seasons have been very good there should be an abundance at the end of the year. Different varieties should be tested in different districts to see which does best. There is a short article in the JOURNAL on some of the most popular varieties in the different districts.

SEEDS.—We have in stock—Vegetable seeds, Cowpeas, Jerusalem peas, Overlook Beans, Guinea Corn (red and white) selected seed corn.

Those who wish to keep down weeds in their bananas for the next 6 months, should plant Jerusalem Peas. These only blossom about November.

GUINEA CORN.—We are glad to say that large crops of White Guinea Corn are being reaped and seed for planting will be available at moderate prices. As we have so often pointed out this variety of Guinea Corn grows most luxuriantly and is useful as a forage crop as well as for the grain. The one drawback is that it bears only in January, no matter when planted. It can be planted in March or April—in fact whenever there are seasons. If planted early it grows very tall as it has a longer period of growth. It can, however, be cut down for feeding in June or July and will still bear a good crop of grain in January.

The Red Guinea Corn does not grow quite so luxuriantly but the period of growth is $3\frac{1}{2}$ to $4\frac{1}{2}$ months, from the time of planting to the time of reaping. Some of those who have grown it have got excellent results, while others have not done so well. This was due to the seed—we had not enough native seed and had to send out some imported seed which never grows so well as that grown here. This Red Guinea Corn is one of those plants which seems to improve here. Our own grain is much superior to the imported seed. We shall not have a large quantity of this Red Guinea Corn to send out, but those who wish to have a quick-growing, drought-resisting crop, should try it, keep the seed and replant. Remember, however, that it is little use planting Guinea Corn unless the seed has been treated first by being passed through kerosene and woodashes.

In a United States paper we read that in the State of Oklahoma there had been years of drought in the summer so that corn (maize) could not be raised again: the crop failed every year through dry weather. The farmers started to grow Kaffir Corn (similar to our Guinea Corn) until they had nearly half a million acres in this crop; then came a dryer year than all and the following is what was written about the two crops: Corn (maize) and Kaffir Corn:—

"On one side of the road would be a cornfield burned to a crisp, without ears. On the other side would be a radiantly green kaffir field, with its sturdy growth and long, upstanding heads, producing thirty bushels of grain, or more, to the acre, and a lot of fodder besides. The contrasts were decidedly marked. It was a demonstration that left its impression.

According to the agriculturist at the Panhandle Institute at Goodwell, Oklahoma: "The roots of the corn were nearly all killed by the drought in July. Examination of green stalks in September showed that the few roots that sustained the plant were so located that they survived the drought. These were probably roots that had made most of their growth after the dry weather was broken.

"Sometimes a stalk of corn would have only one live root; the remainder, seemingly, had been dead several weeks. It was noticed that corn made little growth during August, when there was plenty of moisture in the soil. Roots of corn are not nearly so numerous as those of the sorghums, so they cannot fully occupy the soil as do the roots of the sorghum plant. If corn and sorghum of the same age and size are compared we shall find almost three times as many roots on the sorghum plant as on the corn plant. The roots of the two plants are about alike as to the depth to which they penetrate the soil, and also as to their horizontal growth. But the greater number of roots of the sorghums enable them to draw water from soils in which corn plants will die."

STOCK NOTES

GOATS.—We have had many communications reporting goats suffering from violent diarrhoea or scours. We wrote about this in the December JOURNAL. If the trouble is not caused by young springing grass or other herbage, which would only be a temporary cause it is almost certain the trouble is due to the goats being infested with millions of lice. It may seem curious that diarrhoea usually follows when goats are kept in a constant state of irritation and fever through lice, and yet this pest is the cause of it and is about the last cause that the ordinary goat keeper would think of. The symptoms, however, are usually plain. If the goats are watched they will be seen to be constantly turning round and licking themselves or scratching themselves with their hoofs so that night and day they are kept miserable. We saw a flock of goats lately in a wretched condition in spite of plenty of feeding and good quarters they were infested with lice unknown to the owner.

Another pest that goats suffer from and which causes scours also, is worms, sometimes Strongyli, principally the *Strongylus Contortus*, affecting the stomach and bowels. Such goats as are affected with lice, require to be sprayed with the same disinfectants as are used for killing ticks—all those advertised in this JOURNAL are certain—and the animals would require to be sprayed every week. Probably the pens are masses of lice too, and these would require to be cleaned out and disinfected. For worms the remedy is to get a good medicinal powder which can be fed along with a little ground corn and this saves drenching. Very few people can drench goats and more goats are killed in the process of drenching than are saved. However, one teaspoonful of Turpentine or Jeyes Fluid in two tablespoonfuls of Fish Oil or Castor Oil, given twice a week for a month, will get rid of all worms.

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PIGS.—There have been epidemics among pigs in two parishes—St. Ann and St. Elizabeth—and perhaps in other places also, but only from these two parishes has excessive mortality been reported. In one small district of St. Elizabeth 50 pigs died. It is difficult, however, to get an accurate description of the symptoms by letter. The matter was placed before the Board of Management of this Society at their last Meeting and the Government was asked to send the Government Veterinary Surgeon down to investigate. It is very regrettable that there should be so much loss among pigs as the Island has been short of pigs since 1907. The symptoms in St. Ann appear to be those of Swine Plague.

Those who keep many pigs should always be prepared with medicine to be able, not so much to cure those that are attacked, as to try and prevent other pigs from taking the trouble whatever it is. It is difficult to give medicine to pigs as they are not easy to drench in the ordinary way, and as one of the first symptoms of sickness is their refusal to eat food, medicine cannot usually be given to hogs, already sick, in their food. It is necessary, therefore, whenever a few pigs in a lot become sick, to at once give those that are still well a laxative medicine and a tonic medicine.

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PARALYSIS IN PIGS.—There have been a few cases of pigs losing the use of their hind quarters—they go about on their fore legs drag-

ging their hind legs. This may be due to several causes, viz., (1) it may be rheumatism to which pigs in the mountains exposed to heavy rains and chilly nights are liable; (2) it may be worms in the kidneys and in the surrounding parts—this is the most common cause, commonly called “Kidney worm”; (3) in young pigs it may be overfeeding with fattening foods with not enough bone making material in such foods. If it is rheumatism the pigs will feel pain if the legs are pinched and they will probably be able to use the legs a little. The cure is to keep the pigs in a dry place with plenty of bedding and give a good tonic medicine. When affected with kidney worms the paralysis of the hind quarters is complete or nearly so, and they do not often recover. In this case it is well to give all the pigs a dose of one teaspoonful of Turpentine or Jeyes Fluid in two tablespoonfuls of Castor Oil and two tablespoonfuls of Fish Oil or Coconut Oil. This is the dose for every 50 lbs. weight of pig. The dose must be given on an empty stomach and should be given twice a week for say three weeks. When the paralysis is in young pigs, feed a more varied diet and give plenty of green stuff with a handful of charcoal and wood-ashes in the food. A very good pig medicine can be made up as follows:—

Sulphur	2	ozs.
BiCarbonate of Soda	4	”
Sulphate of Soda	2	”
Black Antimony	2	”
Sulphate of Iron	1	”
Wood Charcoal	2	”

One dessertspoonful given once daily in a mixed diet or in milk, for every 50 lbs. weight of pig.

POULTRY NOTES.

FEEDING.—The first batches of chickens for the season will now be appearing. We wrote last month that there was no hurry to feed young chickens after hatching. We find on careful enquiry that there is a tremendous mortality among chickens, even in the first week of their life. We question if 20% of the chickens hatched are raised. So far as we ourselves are concerned we do not lose from sickness more than 5% of chickens hatched in an average year, and we certainly raise 75%; the rest of the loss is accounted for by chickens being tramped upon by stock and being taken away by hawks; only a very few are taken away by mongoose and none by rats at present, although formerly rats accounted for a lot. A great many chickens get indigestion in the first 24 hours of their lives by being fed too early and then on improper food. They do not need to be fed for 24 hours after the last one is hatched and 36 hours would be better—even 48 hours would not matter. The first food we use always is coarse Scotch oatmeal, usually called pin head Oatmeal, and a little of this sprinkled in clean earth or grass is enough; do not overfeed. A good many people use rice, and brown rice is excellent food for chickens but not as their first food; white rice is never a good food. All the time dry rice has to be used very carefully. We have known of whole broods of chickens being killed through being overfed with dry rice. Those who feed it do not seem to reflect that rice swells to four or five times its bulk when it becomes moist, so that when fed dry it has to be fed

very sparingly. Partially boiled it is good. However, the best first food is Scotch oatmeal; failing this, cornmeal pudding crumbled up is good; ground corn is not suitable but is passable. We are really badly off in Jamaica for economical and suitable feeding for poultry, and it is difficult to make poultry keeping pay, when between the corn seasons, corn runs up to 5/- and 6/- a bushel. The whole trouble of feeding poultry economically and of finding the most suitable food for young chickens, could be solved if Guinea Corn were generally grown and it is so prolific that it could be grown and sold profitably at 2/6 per bushel. The Red Guinea Corn (Dhurra) is especially useful as it is a quick crop, growing in from 3 to 4 months and resisting drought well. We have fed this Guinea Corn to young chickens and they have thrived on it.

Neither chickens nor full grown fowls can thrive wholly on grain food if they are confined; arrangements must be made so that they can get animal food of some kind. We find a manure heap a most excellent thing; it usually swarms with grubs, often the larvae of the house fly which the chickens make short work of. Like fowls, chickens must be kept scraping and looking for their food. A nest of duck ants is good food if not too much of it is fed at one time. When chickens begin feeding they ought to have water in a shallow tin placed in the shade. Dirty water or sun heated water is a fertile cause of diarrhoea in chickens. Young chickens should be fed four times a day in small portions, later on three times a day, and this should be kept up. A great deal, however, depends upon the run they have. In some fortunate places, such as banana plantations, chickens can find abundance to eat, such as the small bunches that have been left on the ground not worth picking up, and these again breed grubs, so that we have known broods of chickens that never required to be fed at all. The ticks from cattle are excellent feeding; they are simply composed of cows blood.

Chickens are subject to a good many diseases. The first trouble usually is indigestion. They get their little crops stuffed full with hard grain, so stuffed that the contents won't move. First try a little Bi-Carbonate of Soda in water and make the chicken drink it by holding its bill in the water; the crop can then be gently kneaded. If this does not move it after a few hours, a quarter of a teaspoonful of castor oil to a teaspoonful of sweet oil—according to the size of the chicken—may be given and the crop again kneaded. Usually the kneading process relieves the crop, but if not, an operation—which not many will attempt—can be performed by slitting open the top of the crop, taking out the contents and stitching the skin again; then feeding only bread and milk for a few days.

The second most common trouble is 'Yaws' which we have dealt with very often. The chief cause of this is dirt—the hen and chickens sitting among their own droppings night after night; or in a fowl house among the excretions of other fowls: this always causes yaws. There are a good many ways of getting rid of yaws but we always prefer the simplest ones. People will recommend burning the eruptions with Butter of Antimony, or Carbolic, or Caustic, but these can only be used in the hands of skilful and careful people. A stick of Caustic is excellent but if not carefully kept air tight will evaporate, and carelessly handled will also burn the fingers. We write for the many readers who must use simple remedies. We prefer also all-round remedies—things that can be used for more than one purpose. For

Yaws this is found in Tincture of Iodine which is not dangerous and can be had at every Dispensers. A feather—or camel hair brush—dipped in the Tincture of Iodine and touched on to the yaws will take the eruptions off in 3 or 4 applications. At the same time Epsoms Salts should be put in the drinking water to clear the blood; but no remedies will be of use unless the chickens are kept in a clean place; if they are put up in coops at night these must be shifted about or at any rate cleaned out at short intervals with some disinfectant.

These are the two most common troubles among chickens here.

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COMMENTS.

GENERAL MEETING.—The Half-Yearly General Meeting on Thursday, 21st January was very successful. There were twenty-four delegates from twenty-seven Branches, spread all over the Island, one coming from Manchioneal in the extreme east, and one from Flint River in the west. The meeting lasted from 11-40 a.m. until 2.30 p.m. with His Excellency the Governor, the President, in the Chair.

Branches must note the Rule that only matters of general agricultural interest and importance can be discussed at this meeting; some subject that people in Portland, Clarendon and Hanover may be equally interested in. The question of some purely local road is not a subject for the General Meeting.

We should like to be able to publish the full report of the meeting but owing to cost we shall require to publish this separately, and only a small number, enough for each member of the Society to receive one and 6 to each Branch.

WAR FUND.—Since last Journal when we published a list of those Branches who had contributed to the Agricultural Societies War Fund, we have received £3 from the Deeside Branch, 13/- from the Central St. Mary Branch, and from Warsop Branch, £1 2s. 3d. This brings our total to £153 17s. 11d. If all the Branches had sent in their contributions as Agricultural Societies to us we should have had £250.

WAR GIFTS.—We received for shipment by the s.s. Chagres on Monday, 8th February, to Bristol, 666 cases made up as follows:—

306 boxes Grape Fruit,

347 boxes Oranges,

5 Cases Banana Figs (100 lbs. each)

5 cases (containing altogether 271 lbs. principally Guava Jelly and Grape Fruit marmalade.

3 cases Ginger Sugar.

Of these we had to reject 8 boxes of Grape Fruit and 5 boxes of Oranges.

These are all for the Military Hospitals in the United Kingdom and France, and the Preserves are meant for the sailors in the North Sea Fleet, if possible. A case of Ginger Sugar went with the last lot in March and was much appreciated. It is most valuable for making a wholesome and refreshing drink.

AUTHORIZED PERSONS.—Branch Societies are strongly recommended again, as they have often been before, to take charge of their "Authorized Persons", i.e., act as managers of them and make them feel that they are under some organization. Some Branches made mistakes in appointing men who were not connected with the Branch at all, and thus these men think that they are under no authority, have in some cases refused to recognize the request of the Branch Society for reports as to their work. As a great majority of the "Authorized the nomination of a Branch Society, the men nominated should be Persons" are appointed on members of the Branch, and well proved to be of good character, good physique and intelligence; they should be made to understand that they must report to the Branch which nominated them, on the work they have done, and it would also be helpful if the Forms of Claim for work done were filled up and signed at a meeting of the Branch, for it is certain that at a meeting of from 20 to 40 men of a district, someone at least must know all about a case and be able to prove whether the "Authorized Person" did such and such work, so that there would be no question about payment by the local Clerk of the Courts.

If there are any matters in doubt the fullest particulars should be got about these and sent on to us. It is no use sending on vague statements; we must have definite and precise information on each point.

We were directed at the Half-Yearly General Meeting held in January last (1914) to prepare a pamphlet on the duties of "Authorized Persons" and this was duly prepared and sent on to the Hon. Attorney General for his revisions on points of Law. In the meantime, however, there arose many local difficulties particularly on the point of the difference between common larceny and praedial larceny so that the Attorney General has taken into consideration the question of recommending that the distinction between common Larceny and Praedial Larceny as regards agricultural products should be abolished. There ought to have been no such difficulty locally, as the Law permits the "Authorized Person" to arrest on suspicion; but there has been so much of what we might call "cussedness," little quibbles by local police and Clerks of Courts, that the abolition of the very subtle distinction between common Larceny and Praedial Larceny should be helpful. There has been any amount of absolute stupidity on the point. Then how ridiculous it is for it to be held that if an "Authorized Person" actually sees a man taking yams out of a hill he has no right to arrest the man as a suspected person; yet the local police and even Clerks of Courts have tenaciously made this a point of objection. Of course it ought to be plain that an "Authorized Person" seeing anybody in the act of taking an agricultural product from the ground or from a tree, if that person is not the owner, must suspect him, and if on being questioned he cannot show proper authority, the person taking the product becomes a suspected person. Any amount of trouble has arisen over this point. The abolition of the distinction between common Larceny and Praedial Larceny ought certainly to obviate all difficulty in this direction.

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PARA RUBBER.—No serious attempt has been made to tap Para rubber trees since the trees came of a tappable age. The first planting of this variety of rubber took place in the great drought year of 1907 and in the following years so that the oldest trees are about seven

years old. Unlike *Castilloa* rubber, Para does not yield largely at one tapping; the trees have to be tapped every other day, and any observations made on one tapping or even two or three tappings are of no account whatever; indeed at the first or preliminary bleeding Para rubber trees seldom yield anything at all.

In Richmond in the parish of St. Mary, on soil not suitable for bananas, there are a good many Para rubber trees growing, and Mr. Watts, Assistant Instructor to Mr. Cradwick, who has had some experience in Dominica in tapping these trees, has commenced a systematic course of tapping. Between November 18th and December 31st, three trees tapped every other day gave a yield of 2 lbs. 7 ozs. of good dry rubber, and 11 ozs. of scrap rubber, a total yield of 3 lbs. 2 ozs. of rubber. Three other trees tapped by the Headman on the property between November 19th and January 11th, gave a yield of 1 lb. 15½ ozs. of good dry rubber and 5¼ ozs. of scrap rubber, a total yield of 2 lbs. 4¾ ozs. of rubber. These results are exceedingly promising especially when it is considered that St. Mary has gone through a year of unprecedented drought and that the rainfall for the preceding nine months was abnormally low.

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CORN.—Either we ought to show a large reduction in our imports of corn or our stock are much better fed than formerly, for not only have small settlers in nearly all parishes grown much more corn during the past season than formerly, but a good many owners of large estates are using ploughs and cultivators and growing corn; and they can raise it under 2/- a bushel.

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"Perhaps you will be interested in the growth of the American Corn I got from you. On the 28th November last I planted 33 grains of Longs Champion Yellow Dent, 33 grains of Eureka and 34 grains of Early Mastadon. Up to now the growth of Longs Champion Yellow Dent is just about twice that of the two others."

(We shall be interested, however, to hear what is the result in cobs).

—o:—

QUERIES.

PIGS.—Complaint comes from a Branch of two instances where sows have had a litter of young ones and had no milk. Can any reader say the cause and remedy?

PIGS.—An enquirer states that he has killed several full grown pigs in fine condition, and in each case the fat after being exposed to the air for a few minutes become yellow although perfectly white when the animal was newly killed. These pigs, he states, were not running loose, but were put up to fatten so that their diet was controlled and everything they ate was known and they had clean water.

Perhaps some correspondent will give some information on the subject.

BRANCH NOTES.

ORACABESSA, (St. Mary.)—On the 15th December the monthly meeting was held in the Schoolroom. There were present: The Chairman, the Vice-Chairman the Secretary and five other members. The President suggested that the Prize Holding Competition be postponed. Mr. Powell, the Authorized Person for Jack's River, reported that there has been no praedial larceny since he was made an Authorized Person. There were cases of bad language; but over these he had no control. The matter, *re* debates, was brought up. It was suggested that the subject for the next meeting be:—The Effects of the War on Jamaica. Mr. Bramwell suggested that a topic be chosen from the JOURNAL. Mr. Webster suggested that the subject be: 'Is it more profitable to grow Coconuts than Bananas.' It was resolved that this subject be taken, The Secretary referred to the Half-Yearly Meeting of the Parent Society, and that it was highly necessary that this Society be represented; and Mr. H. A. Webster was appointed to represent this Society. Mr. Rice was asked to be appointed as an Authorized Person. The appointment of Williams as an Authorized Person was a mistake; for he is an Authorized Person for the Gayle Agricultural Branch. It was suggested that the Secretary write Mr. Barclay concerning the matter. Mr. Webster suggested that some meeting be held to augment the finances of the Society.

J. H. WYNTER, Secretary.

WINDWARD (Hanover.)—The regular bi-monthly meeting of the above was held in the Bethel Schoolroom on Friday, January 1st, 1915. A list of subscriptions was read regarding the orange gifts: 81 boxes sent away costing £7 9s. 2d. The President received a cheque from a lady in Kingston for £3 1s. towards orange fund, but had to return the cheque owing to closing of orange fund; also 2/- from a lady in Black River. Correspondence between President and General Secretary read and approved by the meeting. Secretary wrote about cow pens and potatoes, but got no reply. He was advised to write again. Secretary wrote to Mr. Charley *re* the buying of canes. He replied to meet him at Flint River on Monday, 4th, at 10 o'clock to discuss the matter with the several cane growers. The meeting then adjourned.

A. SHAW SAMUELS, Secretary.

CAMBRIDGE (St. James.)—The first regular monthly meeting of this Branch took place last Saturday, 2nd January, 1915. There were present: Mr. E. E. Myers, Senior V. P., in the Chair; Mr. Briscoe, Instructor, the Treasurer, the Secretary and 13 other members. *Re* the Grindstone. The Chairman reported that the axle—of cast iron—had got broken. He was asked to get a new one made for it. The matter of the Half-Yearly General Meeting was discussed. It was decided that as we have no matter to put before it, and as our funds are low, we would not send a delegate to it. It was agreed that the Committee for the proposed Growers' Association should meet soon and report their decisions at the next meeting. The list of those who had subscribed to the Agricultural Society War Fund was read, 20/- being realized this amount was handed to Mr. Briscoe to be remitted as a first instalment towards it, and the Secretary was asked to circularize the members who had not yet subscribed, on the point. He was also asked to circularize all members as to the days for general monthly meetings, and some special duties to the Branch. On these duties the Chairman addressed the meeting. Mr. Briscoe promised to visit the district for instruction and demonstrations on the 19th, 20th and 21st instant, and asked that all who desire his services in their cultivations would give their names to the Secretary in time.

R. M. ARNOLD, Secretary.

WINDSOR FOREST (Portland.)—The regular monthly meeting was held at the Schoolroom on Monday, the 4th January, 1915. Present: Jno. Panton, Esq., President, in the Chair; L. A. Wates, Esq., Agricultural Instructor; C. A. Smith, Secretary and 12 other members, and several lady visitors. The President then called on the Treasurer for his financial report which was read and adopted. The Secretary read letter from the Secretary of the Parent Society, *re* delegate to the Half-Yearly General Meeting of the Parent Society. The Instructor spoke on the subject and impressed on the members the usefulness of sending a delegate to represent the Society, and Mr. W. F. Branch was elected. The matter of Cottage Holdings Com-

petition was next discussed, after which it was agreed that a resolution be sent to the Parent Society, as follows: Resolved:—That this Branch being much pleased with the signs of progress in the district, caused by the Cottage Holding Competition, 1914, would urge upon the Parent Society the necessity for having this class made a permanent feature in the Prize Holding Competition in Portland.

C. A. SMITH, Secretary.

BAXTER'S MT—GEORGES HOPE (St. Mary.)—The monthly meeting was held in the Baxter's Mt. Schoolroom at 5 p.m. on Tuesday, January 4, 1915. In the absence of the Vice-President, Mr. Aaron Harris was voted to the Chair. There were present 12 members, the Secretary, and 3 visitors. The Secretary gave the members a short address pointing out to them that for various reasons this Society has not been as active as it should be, but that they must begin anew with the New Year to make this a successful Branch. Several other members spoke, showing their determination to do so and asked other members to do likewise. It was agreed that a lamp be bought for this Society. The Co-Operative Scheme set out by Mr E. L. Mossman in the November JOURNAL was next dealt with and warmly discussed. All the members, at the Baxter's Mt. end, favoured the scheme, but there are some difficult points which they want explained. For instance: Suppose a member guarantees to supply say ten stems but, subsequently, finds that he can supply fifteen instead, would the extra 5 be taken or could he sell to any other purchasing company without violating the contract. After a long discussion on the scheme, it was moved and unanimously agreed, that Mr. Mossman be asked to attend a meeting of this Branch, and the Secretary was instructed to write him. The matter of a Delegate for the next Half-Yearly Meeting was discussed. Mr. F. A. Dean, Secretary, was elected. The Grindstone question was again brought up, and members pledged to support the scheme. The amount of 3/6 is already in hand. Discussion for next meeting:—(a) The evils of planting Bitter Cassava and Sweet Cassava together. (b) Why should 2 six hand bunches which are 12 hands not be recognised as one bunch since a 9 hand is a straight (one bunch)? Other matters were left for next meeting in February. F. A. DEAN, Secretary.

TROY (Trelawny.)—The regular monthly meeting was held in the Troy School room on Tuesday, the 5th day of January, 1915. There were present: The Chairman, the Secretary and 10 ordinary members. The Chairman impressed on the members the advisability of continued efforts to carry out the Instructor's advice to provide for our own necessities during the war. A letter from the General Secretary *re* Half-Yearly Meeting and sending of a delegate was read. A discussion followed, but owing to financial difficulties no decision could be arrived at; but the Chairman stated that he was due in Kingston on the Tuesday following the debate of the meeting and if he can find it possible to go to the meeting he would communicate with the Secretary. The bad condition of the roads into Tyre and the Crown Lands was represented by Mr. C. Edwards. A discussion ensued in the course of which it was stated that the people working these roads, being strangers, take no interest, and therefore fail to give satisfaction. It was decided that, on fuller information being furnished, a representation be made to the Parochial Board. There being no further business, the meeting was adjourned. T. PINNOCK, Secretary.

GLENGOFFE (St. Catherine.)—The monthly meeting was held on Tuesday evening, the 5th January. On account of heavy showers of rain late in the afternoon the attendance was not as large as usual. There were present: Alex. Carey, Esq. (President); Rev. T. M. Sherlock (V.P.); A. P. Hanson, Esq. (Instructor for the district); the Secretary and Assistant Secretary, and other members. The meeting then carried through some very important business among which were the following: (a) The President was unanimously elected as Representative of the Branch to the Half-Yearly General Meeting of the Parent Society, and arising out of a suggestion from the Instructor, that the Representative take with him to that meeting the notes and recommendations of this Society on the Praedial Larceny Law, in connection with the suggested amendments from the Parent Society, the following resolution was moved and carried *nem. con.*:—(Resolution): That in addition to recommendations previously made by the Society upon the suggested changes in

Prædial Larceny Law this Society begs to further recommend that the Parent Society be asked to approach the proper authorities with a view to having the Prædial Larceny Law 9 of 1909 so amended, as to empower authorized persons to deal, not only with the theft of growing crops, but also that of Agricultural Produce in general. (b) The urgent need for the appointment of a J.P. for the district was brought up by Mr. R. Howell, and a Special Committee was appointed to approach the Custos of the parish on the matter at its earliest convenience. (c) Mr. Howell gave a very useful and instructive lecture on the *Pruning of Cocoa*, some of the salient points of which may be noted as (1) *Good Sharp Tools*; (2) *The careful study of the Tree*; (3) *To deal with gormandisers and the evils arising from them*. (4) *Tarring after cutting* (5) *The "die back" disease and rotten wood*. (6) *New or young bark on different parts of the tree as indicative of internal disease*. Mr. Howell's lecture was strongly supported by the Instructor in his "talk" on the subject of Cocoa. The Instructor also read interesting extracts from an article under the heading "London Cocoa Market" appearing in "Tropical Lines," (an English Magazine). The importance of Jamaica Cocoa especially in English Markets was specially dealt with in the article, and showed that the influence of the British Government in the interest it takes in this product, has done much to bring Jamaica Cocoa to the front. The Instructor advised the members never to be discouraged nor lessen their endeavour to bestow the greatest care on the preparation of their crops for the market, even though they may not realise in full the price expected for their carefully cured produce. Mr. Howell gave notice of motion for next meeting on the subject of a spray for the use of the Society. At the next regular meeting Mr. M. Reynolds will give a talk on the subject of "Trenching," and at the meeting following, the V. P. will give a talk on "Ventilation."

J. R. BRYAN, Reporting Secretary.

SPANISH TOWN (St. Catherine).—At a meeting held here on the 6th January, 1915, present were: The President, the Vice-Presidents, the Secretary and seven other members and two visitors. The President explained that they would not be able to use their usual rooms in future as the building had been bought by the Parochial Board, who had taken over the keys. Mr. Aldred, as a member of the Board, was asked to see if he could get the use of the room, if even temporarily, and promised to do so. The Secretary presented a pamphlet from the General Secretary re 'Goats.' It was decided to circulate it. The President spoke on the proposed lecture by the Government Microbiologist at Spanish Town on Coconut Diseases, and advised all to attend. Messrs. A. S. L. Verley, T. G. M. Stewart and Jno. H. Laidlaw were elected members, and Messrs. Verley and Stewart nominated as "Authorized Persons." Mr. Jonathan Wilks, an "Authorized Person," who was present reported a case in which he had secured a conviction for Prædial Larceny. Mr. D. A. Aldred (V.P.) was appointed to be the Delegate to attend the Parent Society's next Half-Yearly General Meeting. On the Secretary's motion the following resolution was passed unanimously: "That this Branch of the Jamaica Agricultural Society hereby records its feeling of deep regret at the death of Mr. George Fortunatus Judah, one of its oldest and most respected members, whose useful work as a public-spirited citizen and Island historian, will long be remembered by his fellow-countrymen with warmest feelings of appreciation and pride, and directs that a copy of this resolution be transmitted to Mrs. Judah (his widow) as a mark of the Branch's profound sympathy with herself and family in their sad bereavement." A vote of thanks to the President for the use of the rooms in which they met that evening was then passed, as also a vote of welcome to Mr. Stewart, a new member, who was present; and the meeting adjourned.

EVERARD LOPEZ, Secretary.

ALBION MOUNTAINS (St. Mary).—The regular monthly meeting was held at their regular meeting place on Thursday, 7th January, 1915. There were present seven members and the Secretary, and a few visitors. Mr. B. Byfield occupied the Chair. It was brought to notice that a few members had not yet paid in their amount for seeds received from the Society. Mr. R. Thompson then made a motion that money should be borrowed from funds of the Society to cover the amount that was wanting and sent to the Parent Society, and that members that still owed should be written to, asking them to settle as quickly as possible. Correspondence dealing with the Half-Yearly General Meeting was next dealt with. After some discussion

the Chairman said that he did not think the Society was in a position to send up a delegate. Mr. R. Fox deplored the poor attendance at the meeting. The Secretary advised members to encourage others to come out. Mr. T. A. Gray then asked the members who had planted the seeds received from the Parent Society, how they were thriving. All testified that they could not desire better; he then spoke on the importance of moulding corn also giving helpful illustrations at the same time. The Chairman then requested the Secretary to write Mr. W. G. Hamilton asking him about Prize money received or promised from the Albany Show. Mr. M. E. Morris gave notice that at the next meeting he would make a motion for the election of a new President for the Society. Mr. Morris was then asked to write a paper on the importance of an Agricultural Society and the necessity of co-operation, to be read at the next meeting.

E. E. H. FORRESTER, Secretary.

KENSINGTON (Portland).—A meeting was held on January 6th, 1915, beginning at 6.20 p.m. Present, Mr. C. C. Neville (in the Chair), the Instructor, Mr. L. A. Wates and others, 21 in all. The Treasurer gave his report. Cash in hand was £2 16s. 5d. The correspondence *re* Half-Yearly Meeting was read, and twenty shillings voted to send up Mr. Thos. Neville as delegate. Mr. C. C. Neville moved a vote of thanks to the Instructor for the year's work, which was carried. The Instructor then lectured on Cleanliness in man and beast, Cottage Holdings, Debates at Meetings and several other topics. He also asked for reports at the next meeting of plants given from the Nursery. A Demonstration was arranged for at 9 a.m. February 3rd, at Mr. Frank Neufille's, and members promised to attend. A Debate was arranged for Pig vs. Goat, with Mr. W. M. Brown for the pig and Mr. Chas. Love for the goat, for the next meeting, February 3. The meeting closed at 8 p.m. with the National Anthem.

W. A. HODGSON BINNALL, Secretary.

CENTRAL ST. MARY (St. Mary).—The regular monthly meeting was held in the Eliot Schoolroom on Thursday, the 7th January, 1915. Mr. J. A. Banks, President, in the Chair. There were present the Acting Secretary, 10 other members and 6 visitors. Mr. James Henry of Clonmel laid on the table 2/- along with the subscription list as amounts collected towards the War Fund. The meeting decided to send off as early as possible all amounts received, to the Secretary of the Parent Society. Mr. Henry read article from the JOURNAL on Foot and Mouth Disease. Mr. J. Gordon spoke on the rat-killing campaign; the meeting finally agreed and decided that all the neighbours set poison in their fields together, in the same week, so as to effect a good killing of the pests. It was suggested that the ladies of the Branch go in for fowl rearing on an improved scale, which would enable them to speak freely over such articles in the meetings. The acting Secretary was asked to give a paper on this subject at the next meeting. The following was brought up by Mr. F. Gordon for consideration: Whether the berries from a hollow coffee tree would give the same weight as that of a sound tree. Mr. M. L. McLean, the present teacher of the Eliot Day School, became a member of the Branch, and paid his fee. Mr. Philip Livingston of the Clonmel district was recommended by the Branch as an Authorized Person for the said district.

F. A. WILLIAMS, Secretary.

WILLIAMSFIELD (St. Catherine).—The Regular monthly meeting was held at the Baptist meeting house on Thursday, 7th January, 1915. There were present: P. A. Moodie, Esq. (Pres.) in the Chair; one V. P., the Secretary, the Assistant Secretary, 15 members and a number of visitors. The Secretary read circular from Parent Society dated December 3rd, 1914, calling upon the Branch to appoint a Delegate to the General Half-Yearly meeting, and the President was appointed to attend. The President was asked to read to the members Mr. E. L. Mossman's suggestion in regard to the Co-Operative Societies (page 460.) He not only read, but explained at length the manner in which a scheme could be adopted, and suggested that at the next meeting the subject can be brought up for discussion; this was agreed. It was moved and seconded that the hour 4 o'clock, for meetings, having been given a trial for over three months, which was agreed upon at a previous meeting, proves now to be highly unsatisfactory, be it resolved that the hour be fixed for 7 p.m. on the 1st Thursday in each month. The President and V. P. was asked to give a lecture on some important subject from the JOURNAL next month; also to give addresses

quarterly. Roll call. President insisted on members attending more regularly. Meeting adjourned by the singing of the National Anthem.

D. E. TAYLOR, Secretary.

CAMBRIDGE-WOODFORD (St. Andrew.)—The monthly meeting was held on the 7th January, 1915, when the following were present: The President, Vice-President, the Secretary, nine other members and four visitors. Report on the formation and organization of a sub-branch with fourteen members at Craighton was presented and received with enthusiasm, this being the second sub-branch formed during the year 1914-15. The striking off of Mr. Daniel A. McGregor's name from the list of Authorized Persons, by the Inspector General of Police, was reported, and all the correspondence on the subject was read for the information of the meeting. The Jack's Hill sub-branch recommended Mr. Wiltshire Johnson as a fit person to be placed on the list of Authorized Persons for the Jack's Hill district. The nomination was confirmed by this meeting. The Grindstone, awarded by the Stony Hill Branch at its recent show to this Branch for having won the greatest number of prizes, being in place, was inspected by the members. A suitable resolution to be sent to that branch was drafted. The Vice-President agreed to arrange for the fixture of the stone; and at next meeting rules will be adapted for the care and use of it. Mrs. H. Fender was admitted a member. Meeting adjourned to Thursday, 4th February next.

R. A. CLARE, Secretary.

GINGER HILL (St. Elizabeth.)—A meeting was held on Thursday, 7th January, 1915. Mr. E. L. Salmon (Chairman). The day was rainy which prevented a good attendance, but there were present 13 members and Mr. J. M. Cousins, from Browns Hall, as a visitor, who gave a very interesting address and asked the Chairman to advise the working of co-operation amongst members. A petition was prepared and read at the meeting regarding the construction of a new road through the District which is very necessary. This petition is to be sent to the Parochial Board at Black River. All cultivations are in full bloom, we are having constant refreshing showers of rain, but the condition of the district is piteous, for no bananas can be sold at present. After the singing of the National Anthem, the meeting adjourned.

R. L. GORDON, Secretary.

MALDON (St. James.)—The usual monthly meeting was held on the 8th January 1915. Items arising out of minutes were dealt with. The President presided. Fourteen members, the Instructor (Mr. Briscoe), and 3 visitors were present. It was proposed that a pair of fowls or a ram goat be purchased for the benefit of the members of the Society, and after a short discussion, it was decided that circulars be sent to all the members of the Society, so that this matter be discussed at the next meeting. Some discussion was held on Crown Lands, and this Society is of the opinion that the prices of these lands are too high. Mr. Briscoe spoke on Corn, Cassava and the Prize Holding Competition. The Instructor and Mr. S. C. Reid visited the fields of the members on Tuesday, Wednesday and Thursday of this week; much work was done, and 16 persons gave in their names to become members. Mr. Briscoe is doing well, and we wish him success. After the discussion of a few matters of minor importance, the meeting was brought to a close.

S. C. REID, Secretary.

DARLSTON (Westmoreland.)—The monthly meeting was held in the St. John's Schoolroom on Friday, 8th January, at 9 a.m. There were present: J. W. Mennell, Esq., in the Chair, Messrs. R. C. Somerville, the Instructor, 6 other members, and the Secretary. Mr. Somerville said, in re small settlers' sugar for manufacture, at Retreat and Cornwall Estates, he had an interview with Mr. Farquharson, who told him that from extensive experiments he had made, he found that he could not manufacture small settlers' sugar, for which he paid six (6/) shillings, with remunerative result, and he therefore had to withdraw the offer. Several letters were read from the General Secretary. In one he calls attention to "unclaimed JOURNALS" of some of the members of the Branch. The Instructor has promised to ask them if they would prefer to have their JOURNALS at Darlston P.O., instead of having them at Bluefields. Another matter dealt with at length, was that respecting the Half-

Yearly General Meeting. The Instructor consented to represent the Branch should he be in Kingston at the time. A very fine and instructive lecturing on "Ticks" was given by the Instructor and was keenly listened to by the members present. The Instructor was thanked for his kind instruction on the subject. At the close of the lecture the Secretary was instructed to write to the Director of Agriculture for one (1) drum of Paranaph to be delivered at Montpelier Station for the use of members in connection with the Branch. The meeting adjourned to 19th February, at 9 a.m. in the St. John's Infant Schoolroom. J. H. HEDLEY, Secretary.

PRESTON (St. Mary.)—The monthly meeting of this Society was held on Friday, 8th January, 1915. Mr. J. Parodie, Vice-President, presided. Correspondence from Parent Society was also read. There were twenty-four members present and some visitors. Mr. Cradwick and assistant, Mr. A. E. Gunter were also present. The meeting was lively and everybody seems quite interested. Arising out of the minutes, the Chairman said that no information has yet been received respecting the letter that was sent to the Parochial Board, to be forwarded to His Excellency the Governor for his sanction to take over road No. 4 leading through the Oxford and Preston districts as Main Road, with the view of affording relief work to assist the people. At this stage Mr. Cradwick introduced Mr. Gunter to the meeting, after which he explained fully the conditions of the Prize Holding Competition, and informed intended competitors that the competition is deferred to early in March to meet their desire. It is not expected that every body will win a prize, and those who are not successful should not be discouraged but should become more ambitious to win success in the future. On Saturday Mr. Cradwick visited the holdings of the proposed competitors so as to give such hints as may be needful; in the morning of same day he and Mr. Gunter demonstrated at the holding of Mr. J. Parodie, where a dozen members and others were present to receive instruction to enable them to better manage their cocoa fields. The Instructor also visited the field of Mr. Simeon Wright to see the caterpillars that are making ravages on his plants. Nearly all the small planters are experiencing the same trouble from like insects. It was suggested at last meeting that a spraying machine be purchased for the use of the members of the Society. After some discussion on the subject it was agreed that the machine be purchased. The Instructor thought it a wise thing to have such a machine as its use is important and varied and will be available to all the members. It was agreed that a two gallon spray be bought from the funds of the Society. Members using the machine to pay a 1½d. and supply their own sprays. *Re* letter sent to committee of Loan Bank asking for an extension of time for the repayment of loan owing to the depressed condition of things, resulting from the recent drought; the Chairman who is a member of that body, said "that the committee is not in a position to do anything in the direction suggested, but the request will be submitted to His Excellency the Governor for his decision, but in the meantime the members must do what they can by way of repayment." *Re* dullness of time: Mr. J. Angus thinks that owing to existing privations among the people, the middle man requires some more loans. The Chairman informed him that those persons who have already got loans cannot get again, owing to present conditions. Mr. W. Robertson, to help Mr. Angus, told him that "the only way to get out of the hardtimes is to plant quick crops, such as peas, potatoes, etc." Mr. S. Wright said "he has planted early crops but they cannot come to anything, being so badly destroyed by insects." The Instructor recommends "spraying" as the only remedy to stay the ravages. Mr. T. Gubern asked "how a cow may be kept so as to be able to give milk nearly through the year?" He was told to take away the calf and milk the mother at a regular hour each day. He also asked at what time may corn be best planted so as to pay the growers. He was told that March is the best month, but it must be put by when gathered and preserved from weevils, and be ready to put on the market when the price of corn is high. Mr. Gunter gave a fine description of the yield of cocoa on a piece of land of 2½ acres; he said without proper attention the results from the crop of the above land for a year was only £3, but after the cocoa trees have got the attention they needed, the results from the crop for a year went up to £11 and upwards. This is remarkable and goes to show that cocoa growers in Jamaica are losing yearly more than half their crops from want of proper attention, as for the most part the trees are left

to care themselves. Questions were asked, to which Mr. Gunter gave satisfactory answers. Four authorized persons made reports. The first three said they have made no arrest as nothing suspicious came under their observations. Mr. Raymond Brown stated that he made an arrest and took the prisoner to Port Maria where he was tried, convicted and sent to prison. Mr. R. Amut moved that Mr. W. Robertson be appointed delegate to the half yearly meeting of the Parent Society on the 21st instant. This was seconded and carried. Mr. Robertson signified his willingness to go. A vote of thanks was accorded the Instructor and assistant for their presence and help and a haughty desire for their presence at all our monthly meetings was shown. Next meeting Friday, 12th February.

I. M. WILLIAMS, Secretary.

BAMBOO (St. Anns).—At the meeting held here on Saturday the 9th January the following very important business was transacted:—Twenty members present (a) Final arrangements for seed competition to commence between 15th of February and 15th March. (b) Secretary instructed to order seed potatoes corn and peas for spring. (c) To correspond with Parochial Board respecting suspension of work on the water supply started at J. H. Tucker's place. (d) Pass resolution asking the Instructor to represent the Branch at the next Half-Yearly Meeting of the Jamaica Agricultural Society. (e) Reports from Authorized persons. (f) Appointment of Mr. Thomas Dixon as an authorized person for Shelly Road. (g) Send letter of condolence to the widow of the late Mr. James Mair, an authorized person, and arranging for a return of his badge, etc., to the police. (h) Members present asked to recommend a proper person to fill the vacancy caused by the death of Mr. James Mair, as early as possible. (i) Report from Secretary showing the need of a roof over the corn mill. (j) Secretary asked to keep the war fund open another month, so that not less than one guinea be sent up; 14/6 subscribed to date. (k) Instructor promised to give a lecture on Corn growing first Saturday in February. Holdings to be judged about the second week in April. Miss Josephine Mair was by unanimous consent, voted the post of Assistant Secretary of the Penny Bank, which is opened to non-members as well as members of the Branch. Very seasonable rains have been falling since the last week of October. The Branch has succeeded in getting a Sanitary Officer appointed for Bamboo District, and the protected water supply it agitated for will soon be accomplished.

J. A. PERKINS, Secretary.

CLAREMONT (St. Ann).—The annual meeting was held on Saturday, the 9th January. Sixteen members were present and the Agricultural Instructor. The report for the year 1914 was read and adopted. The Financial Statements showed a balance in hand of £12 0s. 10d. The election of officers for the current year resulted as follows:—President, Hon. Col. E. Moulton Barrett; Vice-President, Rev. A. W. Geddes; Secretary and Treasurer, Mr. F. P. Alexander. In view of the fact that the Society has had for years the free use of the Church Hall, the property of the Anglican Church, the meeting unanimously decided that the Secretary convey to the Committee of the Church the thanks of the Society for the use of the Hall, and at the same time to remit the sum of £1 as a small token of the Society's gratitude. It was decided that the date for holding the monthly meetings of the Society be changed from the 2nd to the 4th Saturday in the month. The monthly meeting was now held. The Secretary stated that the barrel of Irish Potatoes ordered by the Society had arrived in good order, and that the potatoes were being sold to members as near as possible at cost price. The date for holding the local Show has been fixed for Thursday, the 22nd April. Last year's prize list has been adopted for use this year. The meeting adopted the following resolution, and the Secretary was instructed to send it up to the Parent Society. "This Society having considered the communication from the Parent Society in reference to the planting of canes and the manufacture of sugar, it is of the opinion that unless there was some assurance that the price of sugar in the English market could be maintained at a rate sufficient to pay the producer, it would be unwise for any large outlay to be made in the cultivation of canes. This Society suggests that by way of assisting the small cultivators to obtain a better price for their sugar, the Government might erect in some central positions centrifugal machinery for the purpose of quickly refining raw sugar." Read letter from Mr. J. E. Cox, on behalf of Mrs. H. E. Cox, expressing deep ap-

preciation for the resolution of sympathy sent her on the death of her husband, the ex-Custos. Mr. E. S. McAdam was elected a member.

F. P. ALEXANDER, Secretary.

SAV-LA-MAR (Westmoreland).—At a recent meeting there were present: J. W. Menell, Esq., J.P., Senior Vice-President, in the Chair; Rev. I. A. Dell, Vice-President, the Secretary and 3 other members, also the Instructor, Mr. Somerville. The Secretary reported that the Show Committee at its last meeting decided that the Show which had been arranged for the 1st of January, 1915, be postponed indefinitely in consequence of the War. The Secretary submitted a Circular from the Parent Society *re* price of food-stuffs, and another on the subject of 'Sugar', stating that there will be a shortage in 1915 and that as there will be a great call for sugar for export, estate sugar will be high in price and will probably be greatly in demand to be sent abroad. The Secretary then suggested that those small settlers who have cane mills and have been in the habit of making "wet sugar" should, through their Branches, consider the advisability of making dry sugar in barrels, the sugar could then be sold in the local shops and in towns as Muscovado. The Instructor said that he explained the matter to all the small settlers in the Parish placing all the facts before them. The President, who is also President of the Darliston Branch, endorsed the Instructor's statement. The Instructor also said that he had promised to assist the small settlers to dispose of their sugar to the best advantage. The Secretary presented a bill from M. C. DeSouza and Co., amounting to £3 1s. 0d. for Show printing. The Secretary was authorized to pay the amount. The Secretary read two Circulars from the Secretary of the Parent Society *re* "War Fund." On the motion of Rev. I. A. Dell, the sum of twenty pounds (£20) was voted from the Reserve Fund as a subscription to the War Fund, and the Secretary was requested to forward same to Mr. Barclay, Secretary of the Parent Society and Treasurer of the "Agricultural Society War Fund." On the suggestion of the Instructor, it was agreed to ask the Director of Agriculture to request Mr. Ashby, the Microbiologist, to include Westmoreland in his itinerary. The third Friday in every month was fixed for the ordinary Meeting of the Society. OSCAR M. SEATON, Secretary.

DEESIDE (Trelawny).—The regular monthly meeting was held in the Hastings Schoolroom on Tuesday evening, the 12th inst. There were present: H. Ramsden, Esq., President; twenty-one other members, the Secretary and a large number of visitors. Among the visitors were E. Arnett, Esq., Agricultural Instructor, Mr. Rennie, Assistant Instructor, Mr. and Mrs. D. O. Kelly-Lawson, of Hampden, Dr. and Mrs. Johnston, of Glasgow, Mrs. Ramsden and Miss Dignum. On the motion of the Secretary the standing orders of the meeting were suspended and a resolution of sympathy touching the death of Mr. R. J. Chambers, a well-known and deeply respected resident of the district, and an original member of the Branch, was passed. The caretaker informed the meeting that the Billy Goat had made some improvement and was in a fairly good condition and with some help would soon be fit for service. A letter from the General Secretary informing the Branch of the Half-Yearly General Meeting to be held in Kingston on the 21st Instant, was read. The President emphasized the importance of sending a delegate to represent the Society at these meetings. The matter was discussed but no appointment was made as the Society's funds did not allow of it. It was, however, the unanimous feeling of the meeting that the services of an Agricultural Instructor for the Parish are needed, the position being left vacant since July of last year. After some discussion the following resolution was moved and carried: "That this Society feeling the urgent need in filling the vacant post of an Agricultural Instructor for the Parish, would earnestly request the Jamaica Agricultural Society to make an appointment at an early date and that a copy of this resolution be forwarded to the Secretary of the Parent Society with a covering letter respectfully asking him to represent the matter at the Half-Yearly General Meeting to be held on the 21st instant." Mr. Arnett was asked to address the meeting. He expressed his pleasure at attending a meeting of the Branch, the interest shown in the large attendance and he encouraged the members to plant as much food-stuffs as they were able. He was glad to hear they could get good lands at Spring Vale to cultivate, almost for nothing,

through the generous offer of the President and would advise them to take this opportunity of acquiring these lands and extend their cultivation. The Instructor introduced his assistant, Mr. Rennie, to the meeting. Dr. Johnston, of Glasgow, who had kindly promised to attend the meeting and give his second lecture on the great European war, was next called upon to address the gathering. There was a large turn out of the residents of the district to listen to the doctor, who in his usual interesting way kept the audience spell-bound as he gave sketches here and there on different phases of the great struggle. At the close of the lecture the Rev. A. G. Eccleston moved a vote of thanks to the Doctor which was seconded by Mr. E. Arnett. The singing of the National Anthem terminated the proceedings.

R. R. MCBAYNE, Secretary.

TRYALL HILL (St. Mary).—The regular meeting was held on the 12th January, 1915. Present were: D. McNichol (Chairman) 14 members, the Secretary and 4 ladies. Mr. Egbert Henderson was proposed as a member and unanimously elected. Mr. Henderson paid his due of 3d. Correspondence from Mr. W. Cradwick was read which declared the Travelling Instructor's illness, thus he was absent from the meeting. The Assistant Instructor was introduced to the meeting by the Secretary. The Instructor replied suitably calling attention to Mr. Cradwick's illness. It was pointed out that Mr. Gunter would demonstrate in the cocoa fields of Mr. Daniel Davis, and Mrs. R. Sommers on the following day if no disappointment; all members present were asked to attend the demonstration. The importance of the Prize Holdings Competition was pointed out by Mr. Gunter, and he advised the members of the Branch to interest themselves in the matter. He further called attention to some of the chief points in the competition: attention to catch crops, permanent crops, live stocks, suitable latrine, kitchen, etc., all of which are points that would assure success in the competition. It was unanimously agreed that the President represent the Society at the Half-Yearly General Meeting, and that the sum of 12/- be taken from the funds of the Society to defray expenses, together with the sum of 4/- collected. The question of the best remedy for insect pests on seedlings was asked. The Assistant Instructor informed the meeting that "Slug Shot" sold at 6d. per lb. is best; he also recommended the use of "Naphtalene" for moths, fleas, weevils, etc. The Instructor advised members to make use of the present rains we are having, in planting and sowing, although it was getting rather late for sowing. The Chairman gave a report *re* overhanging trees. The question of matter to be brought forward at the Half-Yearly Meeting was discussed. The following topic was deemed fit: "How Agriculture is hampered in these parts and other parts of this Island," and in which the following would be included: P. Car bridges, No. 16 Parochial Road, Quo qu and Pear Deviation. It was moved that the time for meeting be 1 p.m. The Secretary was instructed to report to the Parent Society the loss of Mr. F. Walters' badge, which was due to his chasing a burglar who attempted entering a house not far from his house. The Society asks that another be given him. Secretary instructed to write for forms on which authorized persons could claim pay for work done. The Secretary was instructed to enquire whether the leaflet promised for the guidance of authorized persons has been compiled, if so, that copies be sent to Branch Societies. The debate—Yam or Cane for this district, laid over for next meeting.

A. A. CONSTABLE, Secretary.

PEAR TREE RIVER (St. Thomas).—At a general meeting of the Society held on Tuesday night, 12th January, 1915, present: C. Lopez Isaacs, Esq., President; the Treasurer, the Secretary, 22 other members, also L. A. Wates, Esq., Agricultural Instructor. It was agreed to purchase a *Rubber Stamp* for the Branch to cost 6/- and the Secretary was instructed to write Mr. Barclay about same, also for a copy of Rules. Mr. Ed. Lindsay informed the members that this was done by him for which he made no charge. A vote of thanks was then accorded him for his generous act. The Treasurer was authorized to purchase and keep a book to record the amounts to be collected for the use of the stone. The Secretary read the circular letter advising the Branch of the General Meeting of the Jamaica Agricultural Society to be held in Kingston on Thursday, 21st January, 1915, and that a delegate be appointed to represent this Branch. This was thought advisable and Mr. Philip Hamilton was duly appointed with his consent. The sum of (20/-)

twenty shillings was voted to cover his expenses, which he accepted. It was suggested that a Debate take place at our next meeting; this was agreed to, and the following subject was selected, viz: *An acre of Yams or an acre of Bananas* which is the more lucrative to cultivate? Mr. Wates then addressed the meeting dealing specially with eradication of ticks on cattle and the use and value of spraying, also on the Banana disease, and urged on the members the necessity of paying attention to their fields and should any signs appear on the trees to inform him at once. He arranged to give a demonstration in cocoa pruning on the next meeting day, and invited as many as could turn out to meet him. A vote of thanks was then tendered to Mr. Wates for his instructive lecture, which he suitably acknowledged. The following new members were elected: Mr. Joshua Garvey, Port Morant; Mr. Charles W. Thomas, Port Morant; Mr. Matthew S. Lindsay, Port Morant; Mr. Joseph Haynes, Arcadia, Boyden P. O.; Joseph Kelly, Pear Tree River, Port Morant P.O. The business having been completed, the meeting closed with the singing of the National Anthem. R. R. SOARES, Secretary.

ABOVE ROCKS (St. Catherine).—The last meeting was held in the St. Mary's Schoolroom on Wednesday, January 13th. Mr. Hanson, the Instructor, the Reporting Secretary, the Treasurer and several other members were present, also several visitors. Mr. Robert Creary was asked to preside. Arising out of the minutes, it was agreed that the Secretary write the Clerk of the Parochial Board again about the petition sent some time ago regarding the Golden River Road. A brief discussion took place as to the work of the Secretaries. It was agreed that the Reporting Secretary report to the newspapers while the General Secretary do the other duties and reports. Mr. Josephs and Mr. Webb were made new members. Both gentlemen promised to do their best to advance the Society. Mr. Lewis gave in his report as an Authorized Person. He said that people were afraid of him owing to the wise way in which he went about his work. There was therefore no arrest to report. He however, complains of the bad language used by the people. Mr. Sutherland, another Authorized Person, made one arrest and the prisoner got six months. The recommendation about Praedial Larceny were discussed at length. This Branch is of the opinion that children who are orphans and others sent to the Reformatory who did no crime should not be mixed with criminals. There should be an industrial home for such children. RED. DENNIS, Secretary.

WATERLOO (St. Catherine).—The ordinary monthly meeting took place on Thursday, 14 January, 1915. Eight members were present, including the President the Secretary, and one lady as a visitor. The President stated Thursday, the 21st instant was the day fixed for the Half-Yearly General Meeting of the Agricultural Society and would urge on the members to send up a delegate to represent the Branch. The President also spoke strongly on the shabby and dangerous conditions of the roads leading from Johnson Penn through the Red Hill by way of Waterloo through Bullock Mountain which connect main road at Spring Vale leading to Point Hill. He gave the names of 18 persons who are dray owners but on account of the dangerous conditions of these roads, the owners have to keep their drays out of the districts which inconvenience them to remove goods to suit draying. There have been two accidents; one man had his leg broken and the other narrowly escaped death. The Secretary was authorized to draw up a petition and send to his Excellency the Governor asking him to convert the roads into driving ones. The matter about the grindstone was brought up. It was brought to notice that the grindstone was being used by others who were not members and that the caretaker was charging money for the use of the said stone which was contrary to the rules of the Society. The Secretary moved that enquiry be made and full report be given at the next meeting and as the caretaker is no longer a member, the said grindstone be removed to another suitable place., and all members who have withdrawn from the Society be informed that they have no longer any claim on the stone. The meeting was brought to a close until we receive notice from the Instructor.

D. C. THOMPSON, Secretary.

ENFIELD (St. Mary).—The Regular monthly meeting was held in the Schoolroom on the 13th January, 1915. There were present: The President, the Vice-Presidents, 22 members, 7 visitors, W. Cradwick, Esq., Instructor, and his Assistant, Mr. E. A. Gunter. The Instructor addressed the meeting, and gave a very interesting account of his experiences at the Toronto Exhibition, as also of the great success of the Jamaica Court of Exhibits compared with other West Indian

Islands. The Secretary was instructed to write to Mr. Arscott of Annatto Bay, who is Secretary of the Central War Fund for this Division, and ask why the amount collected at Enfield was not published. It was moved and agreed upon that the Delegate to the next Half-Yearly Meeting would move that Branch Notes take up at least one-third of the pages of the JOURNALS, and in the event of there being more matter, Comments should give way to Branch Notes; also to ask the Government to extend the time to pay the Agricultural Loans, in view of the conditions now existing. Mr. E. A. Gunter was introduced to the Meeting, and gave a very interesting lecture on the Prize Holding Competition, and on Cocoa pruning. Every one listened with attention, and were highly satisfied. Messrs. R. D. Sibblis and Alex. Donald entered their names as competitors for the Prize Holding Competition to come off in March next. Mr. Cradwick spoke on Panama Disease and instructed members how to find it out. He also congratulated the members on their acquisition of a Grindstone, and gave instructions how to care it. He further expressed his high appreciation of the application from the Branch to have the streams protected; and he congratulated the Branch for their donation to the War Fund. A Resolution was moved and agreed upon that a committee be appointed to draft a petition to be sent to the Council at their next meeting through the Hon. R. P. Simmonds, asking that a bridge be erected over the Dry River Fording. Mr. E. T. Hylton was enrolled as a new member. Meeting brought to a close. The Secretary noted that there is a terrible wave of depression in this part of the country. The cry is no money, no foodstuffs, and nothing to do to earn money. The crisis is brought on chiefly by the war, and next by the severe drought of last year which greatly affected the crops. To all intents and purposes it would appear that 1914 was a harder year than 1912.

J. Z. JOHNSON, Secretary.

CENTRAL ST. ANDREW (St. Andrew).—The regular monthly meeting was held in the Manning's Hill Schoolroom on Wednesday, January 20th, 1915. There were present: The President, Vice-President, the Treasurer, A. P. Hanson, the Instructor, the Assistant Secretary and five members. Matters arising out of the minutes were discussed. The President in a few chosen words expressed his appreciation as to the fresh zeal that the members have shown in the first meeting of the year. Matters arising out of the minutes were discussed. A vote of thanks was given to the President for the interest and enthusiasm he evinced in having the grindstone put up, which has been recently bought by the Branch. Several other matters of importance were dealt with. The Instructor next gave an interesting lecture on the importance and advisability of catch crops. He also in the course of his talk touched on several general topics of importance which will prove of a great advantage to the members. The meeting was brought to a close by the singing of the National Anthem.

R. A. GORDON, Secretary.

PORT ROYAL MOUNTAINS (St. Andrew).—The regular monthly meeting was held in the usual place on Saturday, 23rd January, 1915. There were present: Mr. J. A. Whitworth, V.P. in the Chair; Mr. A. P. Hanson, Instructor; eleven members, the Secretary, and two visitors. It was unanimously agreed that this Branch take steps to ask the Government for a free copy of the Jamaica Gazette, in view of the fact that many matters of agricultural interest are missed by the members, e.g., Crown Lands and price. The Instructor as also Mr. Robinson, the delegate to the Half-yearly Meeting, spoke on the question of Authorized Persons. It was pointed out that the Authorized Persons should take a prisoner direct to the J. P. and not to the Police Station. It was found that in the case of the latter, the Police nearly always re-arrested the prisoner; and the Authorized Person got no pay. The Secretary was told to apply for forms for the payment of Authorized Persons. The Instructor informed the meeting, that the Prize Holding Competition will come off this year. He also informed members that Mr. Tullock, of Gordon Town, is willing to sell lands in small lots by the acre. The Delegate to the Half-Yearly Meeting presented his report, and said that he saw the goat that the Secretary of the Parent Society is procuring for this branch and informed the members that the goat is rather promising though too young for immediate service. Penny Bank: The formation of a penny bank in connection with this branch was discussed. The meeting was in favour of the plan. A committee was formed to draw up rules. On the motion of Rev. E. Mair, it was decided that this Branch take steps to approach the Postmaster General and ask him for Telephone connection between Mavis Bank and the Gordon Town P.O. It was pointed out that planters experienced great difficulties and losses with respect to citrus fruit due to the fact that while sellers were picking fruit sometimes the order comes from Kingston to Gordon Town to stop buying. The Mavis Bank pickers, not knowing of the stoppage, continue to pick, and even to carry to Gordon Town, only to be told of the stoppage. A committee was formed to deal with the matter.

A. J. CROOKS, Secretary.

The Journal

OF THE

Jamaica Agricultural Society.

The more people do the more they can do: he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

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MARCH, 1915.

No. 3.

BOARD OF MANAGEMENT.

The usual monthly Meeting of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 11 North Parade, Kingston, on Thursday, the 18th February, 1915, at 11.40 a.m. Present: His Excellency Sir Wm. H. Manning, K.C.M.G., C.B. (presiding), Sir Jno. Pringle, K.C.M.G., Hons. L. J. Bertram, C.M.G., D. Campbell, Geo. McGrath, R. P. Simmonds; P. C. Cork, C.M.G., and S. S. Stedman; Messrs. R. Craig, H. Q. Levy, A. W. Douet, A. C. L. Martin, Conrad Watson and the Secretary, Jno. Barclay.

Apologies for Absence.—Apologies for absence were submitted from Hon. J. R. Williams, Messrs. E. W. Muirhead, Adam Roxburgh and Archd. Spooner.

The Minutes of the previous Meeting having been printed and circulated were taken as read and confirmed.

Matters arising out of the Minutes:—

(a) *Shipments of War Gifts—Acknowledgments, etc.*—The Secretary submitted the following letters from the C.S.O.:—

No. 1219-1151.

29th January, 1915.

"With reference to previous correspondence ending with the letter from this Office, No. 163/19885/14, dated the 6th instant, I am directed by the Governor to transmit for the information of the Jamaica Agricultural Society the accompanying copy of a letter from the Crown Agents for the Colonies with reference to the 964 packages of fruit shipped on the s.s. "Aracataca" for the use of the wounded soldiers."

(Sgd.) ROBT. JOHNSTONE,
Acting Colonial Secretary.

2—S.—Jamaica.

Whitehall Gardens,
London, S. W.
2nd January, 1915

Sir,

I have the honour to acknowledge the receipt of your letter of 8th December, No. 16031,18112, enclosing a Bill of Lading for 964 packages of fruit per "Aracataca" being the second consignment for the use of the wounded soldiers.

2. The West India Committee inform us that 953 packages were received consisting of:—

213 Boxes Grape Fruit.

709 Boxes Oranges.

30 Barrels Mixed Fruits.

1 Box Ginger Sugar.

and Messrs. Elders and Fyffes advise that 12 Boxes were washed overboard.

3. All the fruit was received in good condition with the exception of 44 boxes of Oranges which were in bad condition.

I have etc.,

(Sgd.) R. L. ANTROBUS.

The Hon'ble

The Colonial Secretary,
Jamaica.

No. 1781-2227.

11th February, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter, No. 6975, dated the 9th instant, reporting the shipment on the s.s. "Chagres" of a further

consignment of fruit, etc., given by members of the Jamaica Agricultural Society, for the use of wounded soldiers in the various military Hospitals in the United Kingdom.

2. I am to say that His Excellency desires to express to the generous donors of this fruit and preserves his sincere appreciation of their kind and thoughtful action, and to add that these gifts, as has already been intimated, are a great boon to the wounded and sick soldiers.

(Sgd.) ROBT. JOHNSTONE,
Actg. Colonial Secre.

The Secretary said he had received acknowledgments through the Secretary of the West India Committee, of the War Gifts sent to the various Military Hospitals in the United Kingdom. He had selected some of these—from the very South of England to Dingwall in the North of Scotland and from Wales to the middle of Ireland—to show the scope of the distribution of the gifts. The acknowledgments but two spoke of the fruit being in “excellent,” “fine” condition, and so on. The report from Dingwall mentioned that the fruit had been touched with frost *en route* there. He thought it noteworthy that out of the 964 packages of Grapefruit and Oranges sent on deck of the Elders & Fyffes steamer “Aracataca” to Bristol, 896 packages had arrived so well, when so often fruit shipped in cold storage to London had been reported on by agents as having a good proportion wasty, and so on.

The President said that those who had contributed these gifts might be informed of the acknowledgments.

Mr. Douet suggested that the principal acknowledgments should be published in the next issue of the JOURNAL, if necessary in place of some of the Branch Notes.

This was agreed to.

(b) *Report of Committee on Crown Lands.*—The Secretary read the Report of the Special Committee on Crown Lands as follows:—

The Special Committee on Crown Lands met on Wednesday, 17th inst., at the Agricultural Society's office at 3.15 p.m. Present: The Hons. R. P. Simmonds and S. S. Stedman, Messrs. R. Craig, A. C. L. Martin and the Secretary, and considered the rough draft of the suggested revision of the rules as to the sale of lands by the Government of Jamaica to settlers, as proposed by the Committee at their meeting held on January last, and which had been circulated to the Committee for their further observation. “Your Committee beg to report to the Board of Management as follows:—

“1. They apprehend that the Rules are not intended to apply only to purchasers of 5 to 10 acres but are applicable to a class of small free holders who are in a position to buy up to the maximum of 300 acres.

“2. They are of opinion that the Crown Lands should not be exposed for sale until roads are surveyed and opened up and the land surveyed in blocks of varying size according to the nature of the land.

“3. As regards the Rules for the sale of these lands they consider that under Rule 1 the minimum number of acres should be 5 and the maximum 300 acres.

“The last paragraph of Rule 2 should be struck out and the following added:—

“The value of every lot of land to be sold shall be fixed by the Surveyor General in consultation with local proprietors who might be asked by the Government to render him assistance in this respect.”

“Rule 3 should be struck out and the following substituted:—

“Each applicant for the purchase of lands must submit a recommendation from a person of good standing to whom he is personally known.”

“Rule 4 should be struck out.

“Rule 5 should stand.

“Rule 6 should be struck out.

“Rule 7 should be struck out.

“Rule 8 should stand.

“Under Rule 9 dealing with the term of the certificate of sale, clause 1 might read:—

“The purchase money and the cost of survey together amounting to £ are payable in 5 years, by five equal instalments, the first of which shall be payable on

obtaining possession of the land, and the subsequent at intervals of one year thereafter: Provided that the purchaser shall erect and maintain in good order on the land a suitable dwelling house within two years after obtaining possession.

Clause 2. As it stands.

Clause 3. Strike out the words: "Subject to a discount of 3 per cent; balance of clause to stand.

Clause 4. As it stands.

Clause 5. As it stands.

Clause 6. Substitute 3 months for one month. The word "shall" should be "may," the last words of the paragraph "either before or after such entry" should be struck out.

Clause 7. Leave in first five lines and strike out balance of clause dealing with reservations beginning "and with usual reservations."

Clause 8. A footnote should be added to Rule 8 as follows:—

"In the opinion of the Committee it should be specifically stated that a purchaser is not at liberty to sell the land or any portion of it until fully paid for and then only after the Crown Surveyor exercises a right of pre-emption at say 5 per cent. more than has been bona fide offered for it or declines to exercise that right. It should be provided that no lot of less than 5 acres can be sold or in any way disposed of unless in exceptional cases and then only on application to and with the consent of the Surveyor General. The tendency will certainly be for purchasers to sell portions of the land for "house spots," etc., and on small holdings this without the written consent of the Crown Surveyor, should not be permitted. The practice of small settlers selling bits of their land, or willing it away in small portions should long ago in the opinion of the Committee have been stopped by the Government. It has already rendered the making of a cadastral survey of the island almost an impossibility, and has increased the cost and trouble of the collection of taxes enormously. It should be remembered that the indiscriminate and chaotic selling or renting portions of small holdings has been a curse in Ireland and in the Highlands of Scotland and should be prevented here as a matter of good Government.

Signed on behalf of the Committee.

ROBERT CRAIG.

Chairman.

Mr. Craig said that he did not expect that the Board would adopt this Report right away, but he moved that a copy of it be sent to the Government for their information.

The President said that he had not much opportunity of perusing the suggested amendments, but if sent up to the Government he would do so early before the matter came up for consideration by the Legislative Council.

Mr. Levy thought that a clause should be added, whereby purchasers of Crown lands should plant economic trees around the border of their lands. He was sure they would all agree that the time had come when people should reafforest their places, and the clause he suggested would assist greatly in the matter.

The report was directed to be sent to the Government as suggested.

(c) *Co-Operative Marketing of Produce*.—The Secretary said that he had hoped to get this matter in a concrete form, but the Instructor, Mr. Arnett, had not yet been able to make the arrangements he thought he would have been able to make, regarding a centre. This matter had therefore to stand over meanwhile.

(d) *Prize Holdings Competition in Westmoreland*.—The Secretary said that the next parish for this Competition should be Westmoreland. He had, however, representations from the Southern part of the parish that owing to the effects of the storm in 1912 the houses had not yet been put back in such order as to give the holdings a chance to compete, and it had been suggested that Special Competitions on the same lines as those that are being held this year in Hanover and Manchester might be held in Westmoreland instead of the ordinary Prize Holdings Competition. He thought they might leave it for the Branches in the parish to consider the matter first and send on their views. This was agreed to.

(e) *Cottage Holdings Competition*.—The Secretary said that after communication with the Instructors in various parishes, he had found that on the whole, it would be better for this Competition to be renewed in Portland this year, so as to follow up the good that had been done by this Competition there last year. This was agreed to.

(f) *Re Estimates*.—The following letter from the C.S.O. was submitted:—

No. 1780-2313.

11th February, 1915.

"I am directed by the Governor to enclose herewith for the information of the Board of Management of the Jamaica Agricultural Society, the accompanying copy of a circular which His Excellency caused to be addressed to Heads of Public Departments, calling on them, in view of the need for the strictest economy during next financial year, to submit lists of reductions in the Estimates of Expenditure as already submitted, and to inform the Board that His Excellency regrets that he considers it necessary to effect some reduction on the Grant to your Society, which His Excellency will submit to the Legislative Council, in respect of the year 1915-16. The Grant for the current year is Five Thousand pounds. His Excellency understands that a sum of Five Hundred pounds would provide for the filling up of two offices of Agricultural Instructors. If, therefore, the grant of Five Thousand is reduced to Four Thousand and Five Hundred pounds for next year, a reduction of Five Hundred pounds can be effected without any existing officer of the Jamaica Agricultural Society being interfered with. His Excellency therefore directs me to say, for the information of your Board, that he proposes, subject to any recommendations which the Board may desire to make, to place upon the estimates for next financial year, which are shortly to be submitted to the Legislative Council, a sum of Four Thousand and Five Hundred pounds as a Grant to your Society.

2. I am to say that, should it be desired and be of any assistance to your Board, His Excellency would be prepared to direct that the Superintendent of the Lititz Experiment Station should give such aid as he might be able to do in giving instruction in the surrounding district."

(Sgd.) ROBT. JOHNSTONE,

Actg. Colonial Secretary.

The Secretary said that the Society's Estimates were divided into two—the General Estimates which came under the consideration of the Office Committee and the Instructors Estimates which came under the consideration of the Instructors Committee. Both Committees had met that morning and they had agreed that under the present circumstances the Estimates should be cut down as requested, and it had been found possible to arrange to dispense with certain services at a reduction of £250 on the General Estimates and £250 on the Instructors Estimates. These Committees, however, hoped that at the end of this financial year they would carry over a sufficient balance to make it possible to resume some of the services struck off.

The President said he hoped the Society would fully appreciate the circumstances. He thought the Society was doing valuable work and he hoped that its usefulness would in no way be impaired by this reduction. The Society, if it found it had funds, would of course be at liberty to resume the services they had now struck off.

(g) *Government Veterinary Surgeon*.—The following letter from the C.S.O. was submitted:—

No. 1936-1887.

15th February, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter, No. 6824, dated the 3rd inst., intimating that, in the opinion of the Board of Management of your Society, it is advisable that the new Government Veterinary Surgeon when appointed, should be allowed to have private practice, in order that he might gain local experience and that the country pen-keepers might have the benefit of his services.

2. I am in reply to state that the Director of Agriculture had such a proposal under consideration and had made tentative enquiries with the object in view, but that the need for economy will now require other arrangements to be made, under

which only a part of the time of the person selected will be used by the Government and he will be left free to accept private engagements."

(Sgd.) G. M. WORTLEY,
Actg. Asst. Colonial Secretary.

Mr. Craig said that for many years past he had urged that the Government should appoint a Government Veterinary Surgeon of its own, and he noticed from remarks made at the last Meeting of the Board, that the demand was such that one was apparently not sufficient.

(h) *Contagious Diseases Animals Act*.—The following letter from the C.S.O. was read also copy Minute from the Director of Agriculture:—

No. 1956-1122.

15th February, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter, No. 6355 dated the 22nd ultimo, representing that difficulty exists in certain cases in obtaining the services of the Government Veterinary Surgeon for the investigation and treatment of diseases amongst animals, and asking that arrangements may now be made for the Government Veterinary Surgeon to visit certain districts of St. Ann and St. Elizabeth in which there is at present an outbreak of disease amongst swine.

2. I am to inform you, in reply, that His Excellency has caused a record of the remarks which he made and the opinions which he expressed on the subject at the meetings of the Society held on the 20th and 21st ultimo, to be referred to the Director of Agriculture, who has stated that His Excellency's instructions have been noted for action as soon as a Veterinary Surgeon has been appointed.

3. In this connection, I am to transmit, for the information of the Board of Management of your Society the accompanying extract from Mr. Cousins' minute."

(Sgd.) ROBERT JOHNSTONE,
Actg. Colonial Secretary.

The President said he thought that the Director of Agriculture had quite realized that whenever any serious outbreak occurred among stock, whether such an outbreak was on the Schedule or not, the Government Veterinary Surgeon should be sent down immediately to investigate and report.

Mr. Stedman said they were all glad to hear such pronouncements from His Excellency, but he was afraid that nothing was done by the officer responsible after such pronouncements were made. As far back as the middle of January a suspicious outbreak had occurred on an estate among bananas but up to the present time it appeared that no report had been made on that outbreak to this Society and that the owner of the estate had not received a report as to whether the disease was Panama Disease or not.

Sir John Pringle said that personally he did not feel aggrieved at the delay in having a report on the specimens of bananas sent up to the Microbiologist because he did not know how much work the Microbiologist might have had in hand. The cases had been treated immediately and according to the regulations.

Mr. Simmonds said he could not agree with Sir Jno. Pringle. Such reports in such cases should be made at once.

Mr. Campbell said that matters of the kind under notice should take precedence to all other work.

The President agreed that such matters **should** be dealt with and reported on at once, and the Secretary was instructed to ask whether a report had been made by the Director of Agriculture on the cases in question, and if so, to ask for a copy of the report.

(i) *Sale of Cotton*.—The Secretary said he had reported at the last Meeting that a shipment of cotton from the Experiment Grounds had been reported upon as worth 12½d. to 15d. per lb. He had not expected it could be sold until the war was ended. He had, however, received through Mr. Watson, Bill of Sale for 2 bales at 1/1 per lb.,

which would give £24 7s. 6d. gross. His original pre-war estimates had been £30, so that the returns were, under the circumstances, satisfactory.

Mr. Cork said that this would depend upon what it cost to produce the cotton.

The Secretary said that this cotton was grown in various Experiment Grounds, some of them in poor types of soil hardly expected to grow cotton at all, but they simply wanted to satisfy themselves that it would not; some of the cotton was grown in chop holes, some in forked holes and some well cultivated. They could hardly take the expense of experimental tests into account; he could, however, give them the figures for typical plots at the next Meeting.

The following letters from the C.S.O. were submitted:—

(a) *Re Resolution re Sugar.*—

No. 1220-1131/15.

29th January, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter, No. 6356, dated the 22nd instant, and, in reply, to say that His Excellency concurs in the proposal of the Board of Management of the Society to defer taking any further action with reference to a proposed Resolution relative to placing Colonial sugar imported into the United Kingdom on the same footing as sugar that may be grown in the United Kingdom."

(Sgd.) ROBT. JOHNSTONE,
Actg. Colonial Secretary.

(b) *Re Panama Disease of Bananas.*—

No. 1179-1132.

28th January, 1915.

"I am directed by the Governor to acknowledge receipt of your letter, No. 6364 dated the 22nd inst., having reference to the question of giving publicity to any cases of Panama banana disease that may occur, and to inform you that the request contained in the third paragraph of your letter will be complied with."

(Sgd.) G. M. WORTLEY,
Actg. Asst. Colonial Secretary.

(c) *Re Inspection of Fruit.*—

No. 1341-339/15.

2nd February, 1915.

"With reference to your letter dated the 7th ultimo, I am directed by the Governor to state, for the information of the Jamaica Agricultural Society, that a Select Committee of the Legislative Council was appointed in March last to consider the question of introducing legislation for inspection of fruit by duly appointed officers, and that the report of that Committee will no doubt be brought up when the Legislative Council meets this month, but in the meantime no action will be taken by the Governor in the matter."

(Sgd.) G. M. WORTLEY,
Actg. Asst. Colonial Secretary.

(d) *Food Crops in St. Mary.*—

No. 1342-1107/15.

2nd February, 1915.

"I am directed by the Governor to state, for the information of the Jamaica Agricultural Society, that the Secretary to the Board of Supervision, in the course of a report by him on conditions amongst the labouring classes, which he observed during a recent visit to St. Mary, made the suggestion that under present weather conditions, which are good, the people should be urged to plant largely, yams, beans, potatoes and sugar cane.

2. His Excellency is aware that the Society has already taken this matter in hand for the whole Island, but he thinks the need for planting such crops cannot be too often impressed on the people at the present time."

(Sgd.) G. M. WORTLEY,
Ag. Asst. Colonial Secretary.

The Secretary said that within 4 days after the war broke out he had sent a special Circular round to the Branches and the Agricultural Instructors stating the position as nearly as could be forecasted and urging the planting of food crops to as great an extent as possible, and as quickly as possible, but drought down to the end of October

had prevented planting much in St. Ann and St. Mary. St. Mary also was mostly given over to bananas, but he understood from the local Instructor that far more in the way of food crops than usual was being grown. The Instructors Committee received a report from each Instructor every month on the food crops in their respective districts.

Authorized Persons.—A Return of the Arrests made by "Authorized Persons" under the Praedial Larceny Law, during the quarter ended 31st December, 1914, was submitted as printed on page 85.

The Secretary said that the pamphlet he had been instructed to prepare in January last year and which had been duly drafted and sent on to the Attorney General had only lately been returned; he was asked, however, to hold it over until the next session of the Legislative Council to see whether the distinction between Praedial Larceny and common Larceny would be abolished.

Sooty Mould on Citrus Trees.—Letter from the Director of Agriculture re Sooty Mould on Citrus Trees was submitted as follows:—

No. Y. 114.

26th January, 1915.

"In reply to your letter of the 22nd inst., requesting me upon the instructions of the Board of Management of the Jamaica Agricultural Society to afford information as to the 'sooty mould' of citrus trees, and the statement made by Mr. Hanson that the Microbiologist had reported the presence of a parasite here which preyed on the scale insects causing 'sooty mould,' I have much pleasure in doing as requested.

(2.) " 'Sooty mould' is caused by the development of the fungus *Meliola Camelliae* on the honey-dew or excretion of various insects of the families *Aleyrodidae*, *Coccidae* and *Aphididae*, of which the black fly and the white and purple scales are the chief pests of citrus trees in Jamaica.

(3.) "I understood the representations of the Branch Society which you referred to me to be with reference to the 'black fly or black scale' which has been a noticeable pest in St. Andrew for some years and have recently become prevalent on citrus, mango, coffee and other trees and plants.

"Professor Quaintance has recently named this insect from specimens sent from the Department as *Aleurocanthus Woglumi* and considers that it must have come to Jamaica with East Indian plants. Whatever its origin, it has been known on the Liguanea Plain for 20 years.

"The honey-dew from this insect frequently combines with that from the ordinary scales on citrus trees in St. Andrew to produce 'sooty mould.'

"As this Aleurodid is reported not to be of economic importance in India, it is probably controlled in that country by insect or fungoid parasites; and, as stated in my minute to you of the 11th inst., I propose as soon as our new Entomologist, Mr. Ritchie, arrives, to endeavour to obtain parasitised material from India to initiate a control of this pest by natural means as in that country.

"The Microbiologist reported to me on the 2nd inst. that he had found for the first time on materials from Mr. Lecesne of Marker's Park, evidence of a red fungus parasite on 'black scale' of Coffee and Citrus resembling the red *Aschersonia* which parasitises the 'white fly' in Florida. This is of great interest and may lead to some practical results, but in view of the reported lack of virulence of this 'black fly' pest in the East and its free spread in the Liguanea Plain of Jamaica, I consider we are most likely to obtain an effective parasite from India. The *Aleurocanthus* is unknown in Florida and, we therefore, have no data from there to go on in this matter.

(5.) "Fungoid parasites of the various scales are generally distributed in the West Indies and in Jamaica but their action is largely regulated by climatic conditions and where these are unfavourable, the parasites are powerless and the scales flourish unharmed. For example plants that suffer severely from scale at Hope Gardens become free from scale in a short time if transferred to Castleton Gardens where the damp atmosphere encourages the spread of fungoid parasites to such an extent as to annihilate the scale.

(6.) "With regard to the control of 'sooty mould' by Law, this implies the control of all scales, *Aphids* and *Aleurodids* which are the originating cause of the honey-dew which forms the medium for the 'soot' to develop.

"Spraying with lime and sulphur wash is probably the most effective means of controlling the scales, but the 'black fly' (*Aleurocanthus*) is harboured by mangoes, roses, coffee, and so many other plants and trees, that its treatment can only be by palliative measures when a citrus tree is attacked.

"Mr. Ashby's experiments indicated that kerosene was the best agent of destruction for this pest and washes with a large proportion of kerosene are therefore indicated to be effective for this purpose."

(Sgd.) H. H. COUSINS,
Director of Agriculture.

The Secretary was instructed to publish the letter in the JOURNAL.

Praedial Larceny & Flogging.—The Secretary said that a few Meetings ago he had been asked by Mr. Simmonds to write and find out what was being done in Trinidad as regards flogging for Praedial Larceny, and he had now received the following reply:—

Agricultural Society of Trinidad & Tobago,
Port-of-Spain,
26th January, 1915.

"I am in receipt of your letter of the 21st ultimo.

This Society has for many years been trying to impress upon the Government the necessity of inflicting corporal punishment in cases of praedial larceny, but without much effect. As the Law stands the punishment by flogging must be imposed on second offenders, but cannot be given effect to without the sanction of the Governor. This has always been the stumbling block. Magistrates say it is no use ordering the "Cat" when the Governor countermands the order. Of late it is understood that our present Governor has hardened his heart and is giving effect to the sentences of the Magistrates, but sufficient time has not yet elapsed to note the result, and no report has been issued.

Former experience, however, clearly demonstrated that flogging was the one and only remedy to deal with this the worst crime short of those affecting the person known in the West Indies."

(Sgd.) EDGAR TRIPP,
Secretary.

Mr. Simmonds said it was a pity the Secretary had not asked for the specific results of flogging as regards stealing of cocoa.

Experiment Ground.—The Secretary read letter from the Director of Agriculture as follows:—

No. Y. 118.

26th January, 1915.

"In reply to your letter dated the 21st November, informing me that the Instructors Committee do not propose to continue their grant to Mr. Palache's Experiment Ground in Manchester during the next financial year, I am now able to state for the information of the Instructors' Committee that His Excellency regrets that he cannot authorize a provision for this purpose on the Estimates of this Department."

(Sgd.) H. H. COUSINS,
Director of Agriculture.

Loan Banks.—The Secretary submitted resolution from the Richmond Board asking the Board to intervene with the Government with regard to an extension of time for the repayment of loans made by the Local Loan Bank.

The Governor said he had received some other resolutions from local Loan Banks on the same matter, and the question was under consideration.

The Secretary was instructed to reply accordingly.

Instructors.—The Instructors Reports and Itineraries were submitted and directed to be circulated to the Instructors Committee as usual.

Statements of Accounts.—Statement of Accounts was submitted and tabled.

New Members.—The following new members were elected:—

Messrs. C. W. Bailey, Williamsfield P.O.; L. A. Buckland, Kintyre, Hope P.O.; Frank Davis, Hagley Park, Half-way Tree P.O.; E. A. Dodd, Government Railway, Kingston, and Dr. J. C. Monaghan, U. S. Consul.

The Meeting adjourned until March 18th, 1915, at 11.40 a.m.

RETURN OF ARRESTS MADE BY "AUTHORIZED PERSONS" UNDER THE PRÆDIAL LARCENY LAW, DURING THE QUARTER

ENDED 31ST DECEMBER, 1914

JAMAICA AGRICULTURAL SOCIETY.

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Parish.	Names of "Authorized Persons" who prosecuted.	Name of Defendant.	Offence for which prosecuted.	Remarks.
Kingston	Nil	Nil	Nil	Nil
St. Andrew	Nil	Nil	Nil	Nil
St. Thomas	Nil	Nil	Nil	Nil
Portland	William Hossack	Joseph Shand	Unlawful possession of Cocoa	Withdrawn
St. Mary	Robert Jackson	Robert Richards	" " " Coconuts	14 days H. L. D. P.
"	Nathaniel Grant	James Brown	" " " " "	2 months H. L. D. P.
"	Robert Pollack	Edward Stanbury	" " " Yams	Dismissed
"	Benjamin Forrest	George Tindale	" " " Yams	2 months H. L. D. P.
St. Ann	Adam Fulton	Uriah Whitehorne	Prædial larceny of Bananas	5 months H. L. D. P.
Trelawny	Joseph Dixon	Samuel Wright	Unlawful possession of Coconuts	14 days H. L. Lock-up
Saint James	Nil	Nil	Nil	Discharged
Hanover	William Allen	Elizabeth Davis	Unlawful possession of Bananas	Bailed for trial on 8.1.15
Westmoreland	Reuben Blake	Arthur Bennett	Unlawful possession of Yams and Bananas	Nil
St. Elizabeth	Nil	Nil	Nil	Nil
Manchester	Nil	Nil	Nil	Nil
Clarendon	Robert Robotham	Nathan Allen	Unlawful possession of Yams	Discharged
"	John Howard	Moses Grant and Joseph Saunders	" " " Coconuts	2 months H. L. D. P. each.
St. Catherine	Nil	Nil	Nil	Nil

Inspector General's Office.

Kingston, February, 1915.

A. E. KERSHAW, Lt-Colonel,

Inspector General of Police.

FARINE.

The various articles on Cassava Farine, mentioned in the last JOURNAL, which should have appeared in this month's issue, will appear in the April Journal.

—:O:—

INSECT PESTS.

Now that we are growing a greater variety of crops, and there has been an introduction of plants and seeds from other countries and more intensive cultivation than formerly, our experience is becoming the same as that of every other country, that is, we have more and more trouble with Insect Pests. The dealing with insect life in relation to plant life is a special branch of Science called Entomology. This Society has long been calling the attention of the Government to the advisability of appointing a trained Entomologist before these pests get such a hold on the country that planters and Government will require to make expensive efforts to deal with them. It has been promised, and we believe arranged, that an Entomologist will join the staff of the Department of Agriculture at Hope Gardens at the end of March. This should be most useful to us and there is plenty of work awaiting this officer.

Fortunately we are not so bad as many other countries growing similar crops as ourselves. Perhaps the group of islands approximating more nearly to Jamaica than any other in latitude and productions, is the Hawaiian group in the Pacific, and we often find useful information from efforts they make in various directions. They have a strong Department of Entomology in these islands, and of course they need more of these officers than we do, as they are much larger and apparently more troubled with Insect Pests than we are.

A useful circular has been issued by an Entomologist there, which we quote:—

"One of the features of the Hawaiian Islands is that nearly every one, whether he lives in the city or country, is in one way or another interested in plant growth. Scarcely a door yard but has its ornamental plants, shrubs, and trees. Very many of the inhabitants devote much time and attention to the cultivation of various fruit trees, some for private use only, others on a commercial scale. But the days when planting and irrigation was the only attention plants required, if they were ever here, are now past and gone. Vegetation upon these islands is now beset with many ills, not the least among which is injury by insects. Numerous species of scale insects, cut worms, the Japanese beetle, the Olinda beetle, and many other insect pests, too numerous to mention in a circular, have come to stay with us. If there is consolation in numbers we may find it in the fact that our fate is not worse than that of the rest of the world engaged in the cultivation of plants. Man, however, acknowledges no insurmountable obstacles in his way of promoting desirable plant growth. With all means available to science he gives no quarter to his enemies. He fights until the battle is won.

About twelve years ago the advance of the insect army upon our vegetation became so serious that the government was compelled to appeal to a scientist for assistance. The services of Prof. Albert Koebele were fortunately secured, and the war of insect extermination was earnestly begun. Relentlessly has the conflict been waged since that year, and the comparative scarcity of what were formerly pernicious pests is ample evidence of the success of the undertaking. More recently the Board of Commissioners of Agriculture and Forestry has organized a Division of Entomology to carry on the work more effectively. With the object of drawing the attention of the people of this Territory to the work of this Division, in order to establish more intimate and frequent communication between the people suffering from insect injury and the workers in this Division from whom they may secure help, this circular has been written.

The office and laboratories of the Division of Entomology are located in the building at the Government Nursery on King Street, Honolulu. The working staff consists of the following:—

Alexander Craw, *Superintendent of Entomology and Inspector.*

Albert Koebele, *Consulting Entomologist and Entomological Explorer.*

Jacob Kotinsky, *Assistant Entomologist.*

C. J. Austin, *Inspector's Assistant.*

DUTIES OF THE STAFF.—The Entomological staff wrestles with all insect problems outside those affecting sugar cane. In general the work of the Division may be divided into four classes, as follows:

I.—INSPECTION AND QUARANTINE.—It has long been realized that practically all our insect pests are of foreign origin. At one time or another in the past they have been introduced into these islands upon various plants and fruits brought from other countries. Those insects that have found the climate suitable and food in plenty have multiplied in proportion, and in time have become our pests. We have by no means exhausted the world's supply of insects that might become dreaded citizens of our fair isles. In order to keep those possible scourges from obtaining a foothold on our shores, a strict system of inspection and quarantine has been established by the Board. Mr. Craw, assisted by Mr. Austin, meets all incoming vessels and inspects all fruit, plants, tubers, etc., for insects or diseases that they may carry. All such plants and fruits infested with insects or fungi not known to exist on these islands are immediately destroyed. Plants that are infested with a species of insect already established here are fumigated with hydrocyanic acid gas. This gas is used at a strength that does not injure the plants, but kills all insect life upon them. The object of killing such insects is to prevent the infusion of new blood and vigor into those pests already here.

II.—SEARCH FOR AND DISTRIBUTION OF BENEFICIAL INSECTS.—Prof. Albert Koebele has virtually saved the vegetation of this Territory from disfigurement and utter destruction by means of the numerous lady birds and other beneficial insects which he has introduced from all parts of the world in the course of the past twelve years. This is a kind of entomological work of which only the State of California and the Territory of Hawaii have made a specialty. The almost clean and healthy condition of our trees and shrubs at present, in comparison with what it was before Mr. Koebele's coming, is sufficient testimony to the good work he has done. The services of Prof. Koebele are still at the disposal of the Territory. His mission is to travel in foreign lands, search for enemies of our injurious insects, and introduce them into the Territory. Moreover, he being the "Kamaaina" of the Division, his knowledge of the Hawaiian insects is of great value to the Division and the Territory.

III.—BREEDING AND DISTRIBUTION OF BENEFICIAL INSECTS.—A good deal of the work of this laboratory consists in the breeding and distribution of useful insects. Various lady-birds and minute four-winged flies are engaged in the good work of checking the rapid increase of scale insects, plant lice and other insect pests. As neither the "good" nor the "bad" insects are at all times equally distributed over the islands, it is the business of the Division of Entomology to supply the "good" ones wherever they are needed. For this purpose a constant supply of some of this class of insects is kept in breeding jars and cages. Others again are collected outdoors and sent to correspondents.

IV.—STUDY OF INJURIOUS INSECTS AND METHODS OF CONTROLLING THEM.—Insect life, like all other forms of life, travels in a cycle. As in a cycle there is no definite beginning or end. On and on it rolls from father to son and from son to father. Full grown females produce eggs, from which hatch young, which after a certain period of growth, become mature and lay eggs in turn. The length of time consumed between any one stage in the life cycle and the same stage beginning the next cycle, as between egg and egg, varies with the species (kind) of insect, with the temperature and other climatic conditions. In the temperate zones, the active life of most living objects, plants and animals, is interrupted by the winter months. During cold weather most forms of life remain at a standstill. The number of life cycles that any one species of insects would complete in a course of a year is thus reduced. Such is not the case in a salubrious, sub-tropical climate like ours. All forms of life continue in activity the year around. No stage of the cycle is omitted; neither is any stage of it extended because of cold, though normal variation due to fluctuation in temperature and moisture is bound to take place. Thus a species of insects that on the mainland produces from one to three broods, as cycles are sometimes called, if established here, breeds practically continuously and produces perhaps twice as many broods. The seeming calamity is atoned for by the equally rapid growth of vegetation. Where one crop a year is raised on the continent, two and three are grown here. Naturally, the more crops we raise upon a given

area in the course of the year the more attention we must devote to that area, in exact proportion to the number of crops and care given to a similar area in a colder climate on the mainland.

In a new environment the behaviour of insects will change. The climate, amount of food, and number of natural enemies contribute toward this behaviour. As said before, practically all of our injurious insects are of foreign origin, and, except those that are also injurious in the United States, little is known about their habits. We fight injurious insects with their natural enemies whenever these are available. But in the case of injurious insects for which the natural check has not yet been secured, we cannot know too much about their habits and life history. A complete knowledge of these facts can alone reveal to us a loophole through which we can manage to bridle their ravages by cultural or artificial means. It is with the object of discovering these loopholes that we study the habits of injurious insects. There is still much to be done in this direction.

HOW WE HELP FARMERS AND PLANT GROWERS.—As already stated, when beneficial insects are available these are always supplied to applicants. When these are not to be had, however, we are able, in the majority of instances, to offer good advice, or prescribe efficient remedies. Thanks to the good work of Mr. Koebele we have on these islands a good supply of most useful insects. At all times some of these are to be had in some place. Honolulu is excellent breeding ground for all of them, and we always have an eye on the places where certain species of these are to be procured, if we do not breed them in the laboratory. And thanks to the efforts of American entomologists we know of a number of standard remedies that are efficient against various insect pests. Either beneficial insects or prescriptions for remedies, it is our duty to supply to our correspondents.

When our knowledge and farmers' needs warrant it we shall publish bulletins or circulars from time to time giving information on various insects or groups of insects. It is our belief that farmers ought to know about their insect enemies to be able to forestall serious damage by prompt and intelligent application of preventives. This kind of knowledge we hope to impart in our future publications. This, our first one, is of the nature of an introduction, and we hope will in a way prove useful to the farmer and home owner.

HOW TO SECURE INFORMATION ABOUT INSECTS.—It is both our pleasure and duty to study all phases of insect life. The farmer and grower of ornamental plants does it only when driven by necessity, and usually after the harm is done. Naturally he cannot be expected to know at sight whether an insect is injurious or not. Very often he mistakes the "good" for the "bad." In Hawaii especially, all plant ailment is attributed to "blight." "Blight" is a very indefinite word. An insect may be biting or sucking its food; it may attack the blossom, leaves, branches, stem, or root of the plant. Sometimes, indeed very often on these islands, the cause of the injury may be a fungus, a true blight. In each case perhaps a different remedy is required, and *unless we see the actual or supposed culprit we cannot suggest a remedy.* Therefore, when information about insects is desired, specimens should always be brought or sent with the inquiry:

HOW TO COLLECT AND SEND SPECIMENS.—It is desirable to have specimens of the injury as well as the insect that inflicts it. We prefer *living specimens* when these are procurable. In the absence of these, dead ones will help us to identify the culprit. Collect during the day or at night, with lantern in hand, depending upon whether the damage is done during the day or night. We can identify adult (mature) insects more definitely, so collect these when possible. But any stage will do when adults are not available, and all stages would be most satisfactory. Collect and send also specimens showing the nature of the injury. Place all the specimens in a small tin can or strong wooden box and mail them to us. No air holes are necessary. Biting insects, like caterpillars, require food, and some of their food should be placed with them. Scale insects may be sent upon a bit of their food plant inclosed in a tin or strong wooden box. A few specimens are sufficient. Wrap the box neatly in a paper, tie it, and write our address upon it.

CO-OPERATION.—His time spent mostly in the field, the farmer has abundant opportunity for making observations, which may be brought to our attention only through him. These observations may sometimes be of the greatest importance, although they can be fully appreciated by an entomologist only. It is, therefore, highly desirable to both farmer and entomologist that the latter be informed of all important observations made by the former. In other words, it is to the farmer's benefit to keep in touch with the institutions directly concerned with his interests and which he helps to maintain. Farmers should make it a point to visit this office when possible, and write us when they need assistance. Send specimens, ask questions, try to learn from us all we know about insects, and tell us all you know about them.

COTTAGE HOLDINGS COMPETITION IN PORTLAND.

As there were a large number of very small holdings in Portland with houses attached, mostly situated along main roads which could not enter for our Prize Holdings Competition, owing to their small extent, and as the owners were disappointed at this and keen on having some competition, a Cottage Holdings Competition was instituted and has gone through. The following is a report of the Judge, Mr. Cradwick, who accompanied the local Instructor, Mr. Wates, in inspecting the holdings entered:—

Report of the Judge.

I beg to report that Mr. Wates and myself judged the holdings entered in the Cottage Holdings Competition of Portland, Monday, 7th December, to Thursday, 17th. I am pleased to say that although the Holdings in the Western part of Portland did not exhibit the same amount of improvement as those under Mr. Wates' charge, the Competition was as a whole a very great success.

The mark sheet submitted herewith will show the strong points as well as the weakness of the individual holdings so that I feel nothing will be gained by going into elaborate details on these points.

This is the first time this Competition has been tried and I would strongly recommend its continuance, and if possible its extension particularly in the form of more prizes, five prizes in a Competition of 37 entries is not sufficient to ensure the continuance of future effort, in fact I would beg the Society, if they can possibly see their way to do it, to add some money to the Prize List on this occasion, failing that, to award a Certificate to each holding scoring over 60% of the marks, as I can assure the Society, that the effort expended and the improvement wrought in the holdings, to secure that percentage of marks under the rigorous system of marking adopted by myself and Mr. Wates, thoroughly deserves some recognition.

One of the objects gained by this competition, is to interest and encourage settlers to improve the appearance of their homes, when these are situated on small pieces of land, many of which have been in possession of the families for years, while the owners have been compelled to earn their living by cultivation, or otherwise, elsewhere. a very necessary thing in many parts of Jamaica and particularly in such districts as Long Bay, Priestman's River, Boston and Castle. The same necessity exists in districts like Charlestown, but with these unfortunately, owing to a combination of circumstances, the competition was not the success as it was in the first mentioned districts.

It was most encouraging to note the efforts which had been made in this competition particularly in the way of white washing, painting, papering the houses, repairs or the erection of new fences. Attention to sanitary matters and the general tidying and cleaning up of the premises.

I am not sure that it would not be a wise thing, in the future, not to take into consideration the stock on these very small holdings, as this very often consists of animals that are kept almost entirely away from the holding, being simply brought in there to be harnessed, cleaned or grain fed. Some remarkably well cared animals however, were seen in the Boston district, as good as, I think, I have ever seen in any holdings Competition. I was also much struck with the number

and quality of fowls kept by the owners of these holdings, ten being I think the smallest number of chickens found on any of the holdings, and as a rule they are of excellent quality; the majority of them keeping some 15 to 24 chickens.

There is great room for improvement in the pigs, however, a really good pig was the exception rather than the rule, and I particularly draw the attention of the Society to the necessity of some effort to improve this class of stock.

In future competitions I doubt if it is wise to encourage the keeping of pigs at all on these very small holdings, at any rate, the marking must be very severe for insanitary conditions of pigs kept on these holdings, apparently the keeping of pigs on very small holdings is largely a matter of keeping them shut up in a more or less insanitary sty during the day, and allowing them to run out at night to damage their neighbour's crops or dig up the water tables on the public roads.

(Sgd.) W. CRADWICK.

Names.	Address.	House.	Gates and Fences.	Sanitation.	Vegetable Garden.	Flowers.	Permanent Crops.	Stock.	Total Points.	
Mr. Charles Patterson	Priestmans River	16	13½	19	15	3	13½	8	88	1st prize
Mrs. E. Duncan	Priestmans River	17	12½	15	15	3	13½	9	85	£1 10 0
Mr. D. Webber	Priestmans River	17	13½	15	13½	5	9	9	82	2nd prize
Mr. Alfred Taylor	Fairy Hill	20	10	20	4½	5	12	9	80½	£1 0 0
Mr. E. Brooks	Priestmans River	16	13½	18	11	4	6	8	76½	3rd prize
Mrs. R. Francis	Manchioneal	15	12	17	7½	4	13½	5	74	15 0
Mr. Geo. Deans	Long Bay	16	13½	16	9	5	7½	5	72	10 0
Mr. A. Webber	Priestmans River	16	13½	10	13½	4½	6	8	71½	5 0
Mr. Levi Josephs	Bangor Ridge	12	11	13	15	2	11	6	70	
Mr. Simeon Speid	Long Bay	10	13½	8	13½	2½	13½	8	69	
Mr. Nath. Wilson	Priestmans River	14	12	15	4	2	11	8	66	
Mr. Robt. Deans	Long Bay	14	12	15	10	2½	6	5	64½	
Mr. Geo. McPherson	Chantilly	10	9	7	12	2½	14	9	63½	
Mr. C. O. Berry	Priestmans River	16	9	10	6	2½	11	9	63½	
Mr. J. Lafayette	Avocat	17	10	14	4	3	11	4	63	
Mr. Thomas Beckford	Hectors River	18	13½	10	7½	2	6	6	63	
Mrs. Eliz. Kelly	Long Bay	16	12	12	3	3	13½	3	62½	
Mr. A. Tucker	Mt. Hermon	10	7	10	10	2	15	8	62	
Mr. Edmund Reid	Hectors River	18	10	10	9	2	6	6	61	
Mr. T. T. Huggins	Balcarres	16	10	14	5	0	14	4	61	
Mr. Matthias Moodie	Hectors River	15	12	12	9	2½	6	4	60½	
Mr. Evan Street	Long Bay	16	12	12	3	3½	11	3	60½	
Mr. Chas. Burke	Priestmans River	18	7½	10	10½	2	9	3	60	
Mr. Thos. Plummer	Manchioneal	14	12	10	6	2½	6	9	59½	
Mrs. Francis Sutherland	Charles Town	20	12	12	4	0	6	5	59	
Mr. James Afflick	Hectors River	9	12	14	4½	4	10½	5	59	
Mr. Thos. Brown	Priestmans River	12	11	12	8	2½	6	6	57½	
Mr. Moses Leslie	Port Antonio	10	11	14	6	4	6	6	57	
Mr. Chas. Parkes	Priestmans River	9	10	8	9	2½	11½	6	56	
Mr. Alex. Welsh	Long Bay	14	12	14	0	4	6	5	55	
Mrs. M. Plummer	Hectors River	16	9	10	4½	2½	6	5	53	
Mr. James Bryan	Priestmans River	10	15	0	12	2	6	7	52½	
Mr. J. Macgaw	St Margaret's Bay	12	4½	2	10	2	12	9	51½	
Mr. H. H. Burke	Priestmans River	18	10½	0	0	4	12	7	51½	
Mr. D. Parker	Swift River	12	6	13	0	3	8	6	48	
Mary Anderson	Hectors River	12	9	0	7½	2½	7½	4	42½	
Mr. John Holgate	Priestmans River	8	12	0	0	0	12	4	36	

WORMS IN YAMS.

(Being letter from the Hon. Director of Agriculture to the Government, with Report made by the Microbiologist on attacks of worms on Yams and Sweet Potatoes in St. Catherine.)

With reference to the reported prevalence of worms in the yams grown in some districts of St. Catherine, I have the honour to submit herewith a report in duplicate by the Microbiologist on experiments which he has carried out at my suggestion in methods of treating infected yam-heads.

2. Treatment with Lime Wash or diluted "Jeyes" has been found effective in destroying larvae in the yam heads tested at the Experiment Station at Hope and such treatment is therefore to be recommended where infected material is being planted in un-infected soil.

3. As Mr. Ashby points out where the soil is infected from a previous visitation, rotation of crops is the only practicable means of preventing a further spread of the worms in the new crop.

4. By sterilising infected yam heads with Lime Wash and planting in clean land, healthy yams can be grown, while infected land should be planted with other crops for two years before yams are replanted. It is satisfactory to find that the cheap material, Lime is effective, whereas the more expensive and dangerous chemicals, Carbon Bi-Sulphide and Arsenic, killed the plants.

5. I recommend that this matter be communicated to the Board of Management of the Agricultural Society with a view to the widest publicity being given to the results of Mr. Ashby's investigation.

(Sgd.) H. H. COUSINS,
Director of Agriculture.

Department of Agriculture,
Hope Gardens, Kingston.

TO THE DIRECTOR OF AGRICULTURE.

(Report on Experiments with Yams attacked by Weevils.)

A supply of infested yam heads was forwarded by the Instructor, St. Catherine, in July from a district in the parish where weevil attack was severe. The yams were treated with various insecticides at the Laboratory and planted at the Experiment Station, Hope, on the 10th July.

Treatment:—

1. Untreated.
2. Covered with powdered naphthalene balls for 48 hours in a closed jar.
3. Enclosed in an iron drum for 24 hours with Bi-Sulphide of Carbon at the rate of $\frac{1}{2}$ ounce (fluid) per cubic foot space.
4. Soaked for 2 hours in 5 per cent Jeyes fluid.
5. Soaked for 4 hours in limewash at the rate of 1 pound quicklime in a gallon of water.
6. Soaked for 2 hours in paranaph solution at the rate of 1 pound per gallon.
7. Soaked for 2 hours in paranaph of same strength with 1 fluid ounce formalin per gallon added.
8. Soaked for 2 hours in paranaph of same strength with 1 ounce arsenite of soda added.

The yams were dug on 2nd February, weighed and examined. All were yellow yams except one plant on the Jeyes fluid plot which was a negro (Lucea) yam. The plants were grown with the aid of irrigation and the yams were not fully matured when dug but would have become so after another month in the ground.

Comment.—All the untreated yam heads had grown, but two bore only nodular swellings less than 1 inch in diameter at the base of the stems, the heads were bored and contained several living larvae of the weevil. The weevils in the heads planted had evidently continued their work and rendered growth very backward. The body of the yams grown from the treated heads showed no trace of being bored, but in some cases the older parts of the heads were bored and larvae and pupae were found in the tunnels. The Bi-Sulphide of Carbon and the paranaph arsenite treated heads failed to grow. The treatment with Bi-Sulphide was evidently too prolonged, probably 12 hours would have been sufficient to destroy the insect without killing the head. The soluble arsenite is too powerful a poison of plants to be of practicable use. Limewash and Jeyes fluid were equally effective in destroying the insects in all the heads while the other agents failed to kill all the weevils (larvae, pupae or adults). It is satisfactory to note that two cheap and easily obtained

Insecticides were the most effective. The limewash was made from freshly slaked stone lime. Either stone lime or recently burnt quicklime powder should be used as old slaked lime is not caustic so cannot be effective. The actual damage is done by the small white legless worm of the weevil boring into the substance of the yam, the beetle itself does not bore but merely abrades the rind and deposits its eggs either on the rind or just beneath it. When the worm is full grown it works its way outwards to a point just beneath the rind, forms a small cell and turns into the resting form or pupa which in turn gives rise to the perfect weevil. After a severe attack many fragments of the decayed rind enclosing full grown worms and pupae break off and remain in the soil when the yams are dug; in this way the following crop becomes attacked also. This weevil also infests sweet potatoes and probably Irish potatoes and cassava hence it would be safer after a severe attack on yams not to follow with a root crop but with corn, cane, peas or beans. The treatment of the yam heads with limewash and Jeyes fluid (Kreso or Pattinson's fluid would do as well as Jeyes) can only prevent attack by weevil when the heads are planted in land not already infected by weevil from a previously infested crop. Weevil attack on root crops is severe only during drought and naturally is at its worst on sandy exhausted soils. Attempts in the West Indies to destroy the related sweet potato weevil (Scarabee) in the soil have not been successful. The results of the experiment are shown on the accompanying table.

(Sgd.) S. F. ASHBY,
Microbiologist.

Number.	Treatment.	Heads planted.	Plants grown.	Crop pounds.	Remarks.
1	Untreated	3	3	2½	2 plants with nodular & larvae in borings.
2	Napthalene	3	2	5½	One head bored and larvae present, one stalk bored.
3	Bi-Sulphide	3	0	—	All failed.
4	Jeyes fluid	3	2	14	Heads not bored.
5	Limewash	4	4	9	Heads not bored.
6	Paranaph	3	3	9½	One head bored and larvae and pupae present.
7	Paranaph & Formalin	5	4	9¾	One head bored and larvae present.
8	Paranaph & Arsenite	4	0	—	All failed.

(It is gratifying to us to note that the treatment recommended by the local Agricultural Instructor, Mr. H. L. Mossman, to the growers in his district when the attacks of Worms in Yams were very severe, viz; to soak the heads before planting in strong Lime Wash with the addition of a little Jeyes' Fluid (a tablespoonful to a gallon of Lime Wash) a treatment he had already tested—has been proved on test with other methods to be the most effective.)—Ed.

—:O:—

RATS.

"Rats" is an expression, frequently and forcibly, though not politely, used to express disagreement and contempt for the opinion of another, or for a statement of fact. It is therefore as may be readily imagined by no means pleasant, for an Agricultural Instructor, to so often find at the end of an eloquent and soul-stirring lecture on the proper way of growing corn by modern methods or the right

way to care cocoa trees to get large crops, to find, I say, some solemn faced and severe old gentleman of the small proprietor class rising at the back of the room and ejaculating the oracular and disconcerting word "Rats." Of course, one desperately battles against this insidious attack and points out the need of getting rid of bush, surplus of trees around, using poison and traps, but one feels all the time that these are methods tried (it is true not systematically but still, enough for the purpose) and found wanting. One sits down finally with a sense of having failed to convey the main point on account of this uncomfortable word "Rats."

The other day however, in talking with an old gentleman at Fellowship, I got this tip, probably worthless but nevertheless possibly effective and worth trying. He informed me that seven years ago rats and rat bats played fits with his cocoa and he tried the following experiment. Result, no rats or rat bats had come back again for seven years past. I being sceptical, he got a bit worked up and offered to bet £100 on the results, saying the rats would run from Fellowship to Moore Town and never return.

The scheme is to build one or more wood fires ready for lighting on the windward side of the cocoa walk or cocoa field. At dusk on an evening with a steady breeze blowing, light same and throw on them 3d. Frankincense, 3d. Brimstone, 3d. Sulphur, 3d. Myrrh, the fancy ingredients I suppose, and one quart of bird pepper, the real obehah. Then clear out or you repent it, and leave the rats and bats to enjoy the incense prepared for them. Results he claimed are exodus of rats and bats never to return. The question is, is there anything in it? Three years ago cockroaches got into my new Piano and began to make hay. I set some phosphorous paste and killed 16 dead. From that day to this, three years, I have never seen one back in it. The news has been passed to the cockroach community that my piano is a bad place. If roaches have so much sense, what about rats? What price a trial?

L. A. W.

We can quite understand that rats and bats would object to the smell of Brimstone or Sulphur and clear out temporarily, but we doubt if this would make them clear out permanently unless it was repeated. We do not see, however, why Brimstone and Sulphur should both be used, as both are practically the same, and merely for burning purposes the Brimstone would be the cheaper.

We know one Cocoa planter whose record for last year is 9,000, rats all caught in traps by boys. The most economical trap to use, and a very effective one is the locally made bamboo trap, common in some, but not all parts of the island. It is very deadly and rats do not seem to fight shy of it as a bamboo or withe trap is very natural. This trap should be used by everyone on plantations.

If anyone does not know these traps, they can see them at this office.

Ed.

"I have ordered six of my special rat traps as samples and will endeavour to get them to you by an early opportunity. If every householder, planter or not, could be persuaded to use them steadily and constantly there would be in a few years a very different state of things. But it is of *no use* doing what the Parochial Boards seem

to think good enough, that is to say, catch by fits and starts. It simply means throwing away money, for the remaining members of this great family being better fed, propagate with renewed vigour and fecundity."

A. N. D.

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BANANA MEAL.

In an experiment in making Banana Meal, 38 small bunches weighed 915 lbs. They must have been really small, as that only gives an average of 24 lbs. a stem. The skins and stems weighed 378 lbs., and the peeled bananas 537 lbs. which gives 138 lbs. of meal, very nearly one-quarter. The fruit being very small, the bunches were valued at 3d. a stem, total 9/6. The meal cost 4/- per hundred lbs. to make or 5/6 for 138 lbs. of meal. The total cost therefore of 138 lbs. of meal was 15/- which at 2d. per lb. wholesale is equal to 18/8 per cwt. The total value of the meal made from 915 lbs. of green bananas was 23/-. This shows a very handsome profit especially as the bananas were almost unsaleable at this time.

We understand that this banana meal is being used to make bread and cakes by a baker, mixed with wheat flour, and that both the cakes and the bread are appreciated by the public, who can get a larger loaf for 1½d. or 3d. and certainly a no less nutritious loaf.

All those who are using wheat flour in their households should try to use banana meal mixed with the wheat flour—a little experimenting will give the maximum amount of banana meal that may be used with the wheat flour for bread making. Half and half up to three of banana meal to five of wheat flour we are told makes a good loaf. At any rate we know that banana meal makes excellent ginger cakes.

It is all nonsense for people to say that if they use green bananas and ripe bananas in the house they do not want to use banana meal as they would have too much of it. Do not they use wheat flour in bread, in biscuits, in cakes, in puddings, in dumplings, etc., and yet there is no grumbling about using too much of wheat flour?

It is no use grumbling at the high cost of living and taxes, and all the rest of it, if the food that we boast so much of, viz: bananas, is not used as far as possible.

A simple plain cake or scone can be made of 8 ozs. of banana meal to 1 teaspoonful of baking powder, the banana meal to be used instead of wheat flour and the usual ingredients for a cake to be added.

—:o:—
CO-OPERATION.

Owing to the low price of most of our products just now, many of the members of our Branch Societies are asking how they can get better prices for their cocoa, coffee, etc., and we are receiving letters asking us how we don't do this and how we don't do that to help to secure better markets.

We repeat that the low price of some products are due to the War, and that as a Society we cannot influence markets abroad in the slightest.

What we can do now is to try again to get co-operation in marketing produce put into effect.

There is plenty of talk about co-operation, but little attempt by those who talk to get it put into effect. Talk is good enough to arouse interest on a subject, but this talk has gone on for years. Then when an attempt is made to start in practice there are so many theorists who fly too high, want to do big things all at once, and when they are restrained a little and we point out the pitfalls and dangers, we are apt to be told that we are throwing cold water on good patriotic schemes. We have, however, seen too many of the great schemes come to grief all because the difficulties were not properly realized and met by properly organized business methods. And as these schemes have been sometimes run in connection with local Agricultural Societies, or at any rate the same members—practically, the further result is a defunct Branch, and a spell of years before any interest in our work can be renewed. The Agricultural Society is blamed for failure, co-operation suffers in principle and practice from badly organised schemes not gone into first cautiously and conservatively on a small scale.

The marketing of produce co-operatively is simple and effective, yet we are not aware of much of it being done yet. The first step to co-operation is organization: that we have got; the members of our Branch Societies have this matter in their own hands to go a step further and market their coffee, cocoa and even their bananas and corn in bulk, graded and marked and certified, and so be able to make their own bargains with merchants. It is a pity to see individuals next door to each other, one going one way and the other another way with samples, each wasting a day or several days perhaps trying to get a 6d. per 100 more from different individuals. Perhaps in one month 10 or 20 men from one small locality, waste 10 or 20 days going bargaining to sell coffee or cocoa, which all could have been done by one man in a few hours, who could probably with his samples of a No. 1 or 2 coffee or cocoa get for a ton or half a ton 2/- or 3/- per cwt. more than each individual could get for his cwt. Shipping abroad direct should not be attempted. In our stage of trade the middle man who ships abroad usually has his uses; he is the man who studies markets, supplies capital, speculates on rises and falls and takes risks. No little scheme of local co-operation in marketing cocoa at the beginning can afford to take such risks.

The plain weakness of co-operative schemes here is that men will not realize that it is the first duty of the individual to do his best and not to leave all efforts to the other man. Each must take interest in learning all he can about the business, in taking every care with his lot of produce.

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SEASONABLE HINTS.

The best and most general planting season of the year is between March 15th and April 15th. Practically every crop grows well and bears well if planted at that time. It is the chief corn planting time, except in the hottest lowlands where the fall crop grows better. It is the best time to plant peas and beans of all kinds and large crops of these should be put in. In the quickest growing districts it is a good time to plant cane and in the slow growing districts for small settlers cane can be planted to give a continuation crop in the July—15 months after. It is a good time for budding oranges and grape fruit. It is the time to plant a summer crop of vegetables in the garden. All kinds thrive in the hills; in the lowlands such as cabbages, turnips, carrots, and Irish Potatoes will not mature well in the heat of summer.

ROSELLE.—This handsome plant often called out of Jamaica, "Jamaica Sorrel" but here usually called as above, is being utterly neglected here, and is not now seen commonly in districts where it was once often seen in gardens. Yet from it is made a most delicious, refreshing, and healthful preparation. No garden should be without Roselle. We know some districts where there is plenty of it growing, and from which we could possibly get seed.

The Roselle has a habit of growth like the Okra. The stem of the plant is crimson red and the leaves are tinged with red. A fine flavoured sauce can be made from it, also Jelly and Wine. It can be used for flavouring cakes and puddings.

PEANUTS.—Jamaica imports small quantities of Peanuts which are sold in the shops or markets. Peanuts are easily grown here in any sandy loam soil. Some of those who have young Bananas on light alluvial soil might try a crop of Peanuts between the rows, instead of Cowpeas. Some money might be made from the Peanuts where a plough is used and a machine planter to drop the seed.

GREEN DRESSINGS.—Our readers who grow bananas should remember to plant a cover crop between their young bananas and should refer to past JOURNALS for full particulars as to the different crops suitable for green dressings they may plant. We may remind them shortly—although a full description of each crop has appeared in past JOURNALS—that if they want a cover crop for a short period, say 5 months they should plant Cowpeas; for stiff clay soil, and if they do not want the cover crop too dense, they should plant Overlook Beans; these have very powerful roots and go deep down; if they want to cover the land from April right to the end of the year and secure a thick dense cover which will, after the first 2 or 3 months growth, keep down all weeds and give probably 3 or 4 times as much weight of green stuff to add to the soil as Cowpeas and Overlook Beans, they should grow Jerusalem Peas. These latter begin to grow rather slowly but soon spread and only one row should be planted between each of bananas if these are 12 feet apart. Jerusalem Peas only blossom about October no matter when planted.

In throwing up bananas to re-plant the land next year, or throw out for a longer period, plant a row or two of Bengal Beans or Velvet Beans, which make such vigorous growth that they will climb over all the old bananas in 3 or 4 months, providing an immense amount of feeding for beasts, crushing out bad weeds that would otherwise grow, and adding a large store of nitrogen to the soil.

We have plenty of these in stock—Jerusalem Peas, Cowpeas, Overlook Beans and Bengal Beans.

SEASONS.—We have had excellent seasons since last October in nearly all districts. A few odd districts have been too dry or rather wet, but generally seasons have been nearly ideal—shower and sunshine. Whether this will continue no one knows, but we can only hope so. We would rather have good seasons and low prices, than poor seasons and high prices.

STOCK NOTES.

MARES FROM THE SEAT OF WAR.—It is very satisfactory to learn that careful arrangements have been made so that there shall be as little waste of breeding material as possible amongst the mares that have been sent to the front. There has been a lot said in some places about taking mares for Army purposes at all when the troops were first mobilised. That many good mares were sent to the seat of war is undoubted, but it is difficult to see, in the emergency, how this could have been avoided. The waste of horses in war is immense.

The loss is estimated at 3 per cent. in six months, so that by the end of January we see the wastage reached a formidable total; and, of course, a very considerable number of the mares will have gone out altogether—more perhaps, than of geldings, for in many of regular cavalry with which I am acquainted, more mares than geldings are to be found. But the Board of Agriculture wisely has made a great effort to get back for us those mares which may not be able to bear any more strain at the seat of war, and which are likely to make brood mares.

There is no doubt that a good few mares can be saved in this way.—*Farm Field & Fireside.*

HORSES.—The United States Government has standing for service, in various localities for the purpose of improving the horse stock in general and for making available a supply of suitable remounts for the army, a total of 41 stallions consisting of 9 Saddle Stallions, 10 Standard bred, 15 Thorough-breds and 7 Morgans. The last named is an old farmer's breed, formerly bred and used much in the New England States, noted for its great endurance and for all round road work for which it had no equal, and which great efforts have been made of late years to revive. It had almost been bred out by the fad for the Thorough-bred (Race Horse), but the whole idea of breeding horses is now on saner lines, Stallions of the different types suitable for certain work, being placed in districts considered suitable for such types.

HORSES.—The term ringbone is somewhat vague, and is applied to many enlargements about the coronary or pastern joints or bones, and no less than four different forms are classified, depending upon their position and their causes. Amongst the latter one may enumerate blows, bruises, hereditary predisposition, badly-shaped joints, sprains, inequal paring of the hoof and unskillful shoeing, etc.

The early stage of ringbone is very difficult to diagnose. The disease may commence in the articular cartilages, in the synovial membranes, the periosteum, or the lateral ligaments. When exostoses are formed and they involve the action of the joint, a cure is not to be expected.

In most cases of ringbone the early stages are characterised by heat around the parts and lameness; the later stages by ankylosis, revealed by the difficulty in performing the usual joint movements. Nevertheless, a ringbone not involving joint action when fully formed may exist without lameness, provided also that the enlargement does not interfere with the action of tendons.

PREVENTATIVE TREATMENT.

The hoof should be so prepared that the weight is distributed evenly over the lower joints. The toe and the heels require special attention also, and a plain shoe without calkins. Although ringbones may occur on the hind feet, they are not so likely to cause lameness, but the shoeing remarks apply equally in their case.

Treatment to be effectual, must commence by giving rest—a month or more is necessary—and when tenderness and heat exists applications must be applied, at intervals, from fetlock downwards, on some soft, absorbent material like house flannel, secured in position by a broad bandage.

In the early stages warm applications are best, such as strong solution of Goulard's extract, 1 oz.; methylated belladonna liniment, 1 oz.; water to eight ounces.

Two tablespoonfuls of this should be mixed with a pint of warm water, the swabs soaked in it, and over all some water-proof material, intermitting every six hours or so, depending upon absence of pain and tenderness. Then a lotion consisting of chloride of ammonium 1 oz., vinegar 2 oz., methylated spirit 2 oz., water three pints, may be applied on the swab without the waterproof, intermitting as above. In about three weeks' time this treatment should have checked the trouble from extending and also stopped the lameness.

Iodine treatment consists of rubbing in around the coronary or bone affected twice a week simple iodine ointment, and once a week painting same with tincture of iodine.

Blisters are not recommended. The iodine treatment is preferable. In some cases where this treatment fails, needle firing with the zoocautery has a good effect; but this, of course, is an operation requiring a veterinary surgeon.

During the treatment a loose-box littered with sawdust or moss litter is to be preferred, taking care the feet are picked out and the litter not allowed to get wet.

During the swab application, the horse must be secured on the pillar reins.

Feeding must be restricted to hay, two feeds of oats, and crushed roots a few, when in season. Also give once daily in drinking water one dram of each of nitrate and chlorate of potash.—*Farm Field and Fireside* (England.)

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BLACK LEG is a common disease here among cattle. Frequently vaccinating with Blacklegoids is simple, inexpensive and effective as has been proved by many prominent breeders of cattle. These Blacklegoids can be had from our advertisers at 6/6 per box.

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MARES NOT BREEDING.—We have had a good many letters stating that mares take service repeatedly and yet do not prove in foal; yet are apparently stunted, but come in season again. Every man who has mares or cows should possess a syringe to hold a quart. When he knows the mare or cow is troublesome to hold after service, he should syringe the vagina of the animal before service, first with two quarts of luke-warm water in which has been dissolved a quarter of a teaspoonful of Permanganate of Potash. This will cleanse and disinfect the animal. Next day he should repeat the syringing with the same quantity of water, but this time with one tablespoonful of Bi-carbonate of Soda dissolved in it. Do not be afraid the animal will burst with two quarts of water inside: even four quarts could be easily held. Whether all the water is expelled soon again from the vagina or is absorbed through the bladder and passed later does not matter.

By this process we have had two mares breed that had been sent repeatedly over several years to Stallions and never proved in foal.

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FOOT AND MOUTH CAMPAIGN IN U.S.A.—President Wilson in January signed a bill carrying a Federal appropriation of \$2,500,000 to pay stockmen for the losses occasioned in stamping out the disease, and thus a great forward step was taken. Admittedly one of the strongest grounds for opposition to the slaughter of cattle has been the remuneration which the farmers received. "Scraps of paper" could not carry the weight in an argument that the available funds will easily have. The U.S.A. Government has already mailed vouchers to pay for its half of the indemnities. In the State of Illinois this amounts to something like \$600,000.

FOOT AND MOUTH DISEASE.—Foot and mouth disease is an ancient scourge of cattle. It is not fatal, but it is often so crippling that the afflicted animal has to be killed. It is virulently contagious.

The disease usually starts with a blister in the hoof. The animal licks this, thus conveying the infection to the mouth, where it works

so virulently that it often causes the tongue to drop off. In such case the animal dies of starvation.

Hogs are subject to the disease, and it may infect human beings. Chickens, pigeons and other farm animals carry it. It has made its longest jumps by being carried on the shoes of farmers from infected areas.

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PIGS.—Now that the corn crop has come in, a good many of the small badly shaped cobs can be flung to the pigs. Sometimes this new corn causes digestive trouble, because no care has been taken to dry it. In all cases it would do far more good to the pigs, and no possible harm, if it were partly charred first, as a little charcoal is good for pigs. Indeed no cobs after being shelled should be flung away. These should be made into charcoal or ash and kept in a tin or barrel, and a small portion placed in the pigs' food every day. The cobs can be placed in a heap and reduced to charcoal or ash—those most severely burned will be ash and those less severely burned will be charcoal.

The following is a way of making charcoal.

If a hole is dug 2 or 3 feet deep and as large in diameter as desired, say 5 feet, and a grating made of gas pipes, old buggy axles, shafting or any available metal rods, is placed 8 inches above the bottom of the pit, the rails or posts may be piled on this in a conical pile and so arranged as to direct the draft up through the centre. The pile may then be covered with straw 2 to 4 inches thick except for a circular opening about 1 inch in diameter at the top. The dirt should then be shoveled on top of the straw so as to keep out the air from the sides. Then build a fire below the grating and allow it to burn until the pile inside is well ablaze, then cover the opening at the top of the pile with wet straw and dirt to exclude the air. What ashes result may be taken out, mixed with an equal bulk of salt and fed to the hogs. Even though the wood may not be charred through the sticks if put in the hog lot will be worked at by the hogs until the charred portion has been entirely removed. If the wood is dry it may be successfully made into charcoal in this manner."—Illinois Experiment Station.

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GOATS.—We were asked some time ago what to do for a trouble called "Staggers". The symptoms were that the goat staggers about blindly, turns round about in short circles (like a dog chasing its tail), and after a little may get better and go about as if nothing had happened for a time, and then act in the same erratic fashion again. Some fall down and die.

This trouble may be due to "Worms on the Brain" caused by the larvæ of the Gad Fly which often attacks sheep. This is a kind of bot that enters the head of sheep and goats by the nostrils and finally lodges in the head.

But "Staggers" may also be due to a violent attack of indigestion, fermentation of gas in the stomach caused in different ways, one being by heavy feed of young green grass or it may be due to the eating of some poisonous weed or fungi..

In the case of fermentation a dose of 2 tablespoonsful of Epsom Salts, 1 dessertspoonful of Bicarbonate of Soda and a teaspoonful of powdered Ginger, all dissolved in a half pint of warm water and given to the goat from a narrow necked bottle carefully, will relieve quickly. But the greatest care has to be taken.

In the case of poison a dose of Castor Oil, 4 tablespoonsful to a full grown goat and a teaspoonful of a safe disinfectant (*not* a Tick Wash containing Arsenic) will also do good.

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MEDICINE FOR STOCK.—We sometimes hear of very extraordinary concoctions being used as medicine for stock, which one would think ordinary intelligence would indicate must cause if not permanent harm, at least a good deal of suffering *en route* from the mouth and especially there. Some medicines must of course cause a good deal of discomfort such as those used as purgatives but there are some used which must cause more than discomfort, must cause extreme pain, and certainly do lasting harm to some of the delicate membranes inside.

The other day we heard of a man who gave his horse raw Jeyes—put a tablespoonful on the poor beast's tongue—and this product, so useful if rightly used is one of those things often misused, by being used at great strength externally and internally. A *teaspoonful* to a quart of water is a fair strength for a wash for wounds or sensitive parts or a dose, and double that strength, i.e., at the rate of a *teaspoonful* to a pint of water is strong enough if used in water externally or internally in ordinary cases. When given in oil it can be given strong without harming but the very strongest we would care to use is a *dessertspoonful* to a pint of sweet or castor oil. There are exceptional circumstances where externally it may be used almost full strength—such as to kill “white fly.”

Another “remedy” we heard of as being given was made by steeping a pint of bird peppers in a quart of water then bruising them draining of the water and using for a drench for colic in horses. This was used without being mixed with any covering or diluting agent except water. Now pepper or ginger or mustard are valuable remedies in certain digestive derangements and particularly colic, but they must not be used in such strength that they burn or paralyse the tongue and mouth and throat of the poor animal. Now-a-days there is little excuse for lack of knowledge of what to use in ordinary cases of trouble in Stock.

One of the most common causes of deaths in mules (horses and cows also) is a drench; for not only is the drench composed like the above but the lower jaw is held tight, the poor animal cannot swallow, and some of the drench goes “down the wrong way” causing congestion of the lungs.

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POULTRY NOTES.

PRESERVING EGGS.—Eggs are very plentiful during the Spring months of the year. They begin to get scarce about June, as so many of the common hens, so commonly kept in the country, and many of the breeds which go broody, are then broody or sitting on eggs. It is a good thing to put up eggs now in a preservative and use them in June or July and those laid in those months can be kept for use in October to December, when eggs are very scarce.

We used Waterglass (Silicate of Soda, as got from the Chemist) last year and put up 4 dozen eggs in a kerosene tin in the month of June. We put up the same number in the month of July. These were used at Christmas. They were perfectly good for all purposes except boiling, the shells having become a little thin.

In the absence of Waterglass, which is not always in stock in the Chemists' shops, in Kingston, when wanted, Lime water acts almost as well. The following recipe is effective:

Take 1 lb. of good Lime, as freshly burned as possible; if the Lime is a little oldish take double the quantity. Put it in a bucket, or tub, or earthenware jar, pour enough hot water on the Lime to saturate it and then stir it into 5 gallons of water. Let it stand for a few hours with an occasional stir. Then pour off the water, which is now Milk of Lime, and pour it over the eggs. The receptacle, whatever it is, requires to be covered as the air acts on the Lime and may precipitate it. A little Sweet Oil put on the water will help to keep the air out. If however, after a time the water is seen to be getting clear, which means that the Lime is being precipitated, a fresh quantity of Lime water should replace the first quantity. It does not matter if the Lime water is made too strong, but the above quantity is effective.

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“WORMS IN THE EYE.”—We receive questions dealing with troubles arising in poultry which we have dealt with over and over in this JOURNAL. “Worm in the Eye” however has not been dealt with because it has been a very rare trouble. Little worms are found to infest the eye. A few drops of Kerosene Oil mixed with an equal quantity of fine sweet Oil (Olive Oil for preference, but Coconut Oil or Cotton Seed Oil will do) poured into the fowl's eye, keeping the bird's head bent to the side so that the Oil will stay in for 30 seconds or so, will kill the worms. This must be repeated several times. The Kerosene Oil will not harm the eye.

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CORN.—The new crop of Corn is in and there will be the usual tendency to feed plenty of it from rejected cobs before it is properly dry. We have always found it useful to dry the small deformed cobs with scattered grains, in an oven (or Patent Drier where there is one) even to giving the grains a charring—not burning them, of course. Charred corn is an excellent food for fowls, and horses as well.

Everybody should have a Corn Mill so that Corn to be fed to fowls or horses can be cracked. The charred corn can be cracked in the same way.

GUINEA CORN is plentiful in a few districts for the first time for a long number of years.

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March and April are the months the principal hatches should be made. Watch not to feed the young chickens on soiled ground or on the same ground repeatedly. Shift about.

—:o:—

WEIGHT OF EGGS.—It is of great importance for the success of poultry keeping to be able to produce chickens that are constitutionally strong. It is asserted in this bulletin that the proposition that large, heavy eggs should be used for incubating purposes may be accepted as an established fact, so that it becomes a matter of importance to know when the heaviest eggs are laid and how fowls should be fed and handled in order that they may lay large heavy eggs. The experiments were carried out from 1911 to obtain some information on these points.

The average weight of eggs was found to vary from month to month, reaching the maximum in the early spring when the fowls

were heaviest and laying most freely. Eggs from White Leghorns did not reach their maximum weight until the hens were at least in their third laying season.—*West Virginia University Agric. Expt. Sta., Bull.* 145.

‘We have hardly ever bred from pullets ourselves, having found from long experience that to avoid degeneration and to keep up hardiness and size and fecundity, chickens hatched from hens of the second year onwards are best, and these lay larger and heavier eggs than pullets. Any particularly remarkable hen should be kept as long as she remains vigorous and will lay and her eggs be hatched for one’s own stock birds. Selection in this way can produce hardy, large birds, and which are good layers also.—ED.]

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HOUSEHOLD HINTS.

When Irish potatoes are inclined to turn black in cooking add a few drops of Vinegar to the water in which they are being boiled. This will make the potatoes beautifully white and mealy.

When boiling Rice add a little lemon or lime juice to the water. This makes the Rice white and also separates the grains.

To prevent Honey becoming sugary, keep tightly covered and always in a dark place.

When water is got from springs or rivers it is usually very hard owing to the limestone formation, and in a short time the kettle in which the water is being boiled gets a coat of limestone. To prevent this put a stone or marble in the kettle. This will prevent furring. The same should be done in cooking Custards, Porridge, etc. A large marble obviates, to a great extent, the necessity of stirring these things while cooking.

When Jelly will not set, add the juice of a lemon or lime, or some white Vinegar.

In making Cakes or Puddings always do the stirring with a wooden spoon. This is much better than doing it with an ordinary metal spoon or knife.

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HONEY will be plentiful and cheap. From it can be made a very refreshing and palatable beverage called “Mead”—one of the oldest drinks in history. Boil 14 lb. of honey in six gallons of water for half an hour, breaking into it three or four new laid eggs. Then add small bunches of flavouring from the garden, balm, thyme, etc., $\frac{1}{2}$ oz. each of cinnamon, cloves, mace, and bruised ginger, and boil a quarter of an hour longer. Pour it out to cool, then toast a very large slice of bread of any kind, spread it over with fresh yeast, and put it into the liquor; let it ferment for a day, then put in the cask, but keep it open until the fermentation is complete. It may be bottled in a month, and the corks must be securely tied.—*Farm Field and Fireside*, 25.9.14.

TOMATO CATSUP.—Tomatoes are now in and the following can be made from the small ones, that are usually very common. Tomato Catsup is useful on the table when there are no tomatoes: Take one bushel of tomatoes, and boil them until they are soft. Squeeze them through a fine wire sieve, and add $\frac{1}{2}$ gallon of vinegar, $1\frac{1}{2}$ pint of salt, 2oz. of cloves, $\frac{1}{4}$ lb. of allspice, 3oz. of cayenne pepper, three table-spoonfuls of black pepper, five heads of garlic, skinned and separated. Failing the garlic, three times the quantity of “Scallion” heads will pass. Mix together, and boil about three hours, or until reduced to about one-half. Then bottle, without straining.

USEFUL HINTS.—A bag of salt standing where there is a smell of fish will absorb it.

A slice of lemon, lime, or tomato rubbed over the hands will remove ink stains.

Its, dipped first in lard or castor oil can be driven into hard wood without

To prevent coloured stockings from fading, put a tablespoonful of black pepper into the water in which they are rinsed.

To make a good lotion for the face and hands, grate a fresh cocoanut and put it in a cloth and squeeze out the milk. Wash the face every evening in this milk and rub the skin briskly for a few moments, then wipe with a soft flannel cloth.

There are wonderful possibilities in a dish of cooked rice. Try cutting up a few banana figs in a rice pudding in place of raisins. The flavour is delicious.

BOILED MILK.—An infant fed entirely on boiled milk is liable to scurvy, which reveals itself by the formation of fleshy lumps on the gums or by eruption on the head. The disease arises from the anti-scorbutic properties of milk being destroyed by heat, but as unboiled milk is not a safe diet for infants, means must be adopted to prevent this disease, which, if neglected, may prove fatal. Two or three times a week the infant should have a tablespoonful of sweetened orange, or grape fruit juice, or grape juice, or a teaspoonful of very finely-mashed, floury potato should be added to the bottle of milk.—*Farm Life*.

CABBAGE SALAD.—A quick and delicious salad is made by slicing the cabbage very fine on a slaw cutter, and adding a dressing of equal parts prepared mustard and sweetened whipped cream.—*The Rural New Yorker*.

TOMATOES AND RICE.—Boil a breakfast cupful of rice as if intended for curry, and when cooked, strain it thoroughly dry and mix it well with some tomatoes. Add a little onion or scallion chopped very fine and a little butter. Season with pepper and salt to taste. Put the rice and tomatoes in a pie dish, which must be well buttered and covered with breadcrumbs (cassava bread is quite as good as white bread), and strew a few little pieces of butter over the top, then bake in an oven till of a rich golden colour.

MOULDY JAM JARS.—A not unfrequent cause for jam becoming mouldy is that the jars in which it is kept are sometimes not perfectly dry when the jam is put into them. The jam-pots put away from last year will necessarily be dusty, and require washing. Have jars washed in hot water the day before they are used, and, after drying with a cloth, have them put down in trayfuls, in the sun, to do away with the possibility of damp.

CHOKING.—Serious cases of choking are not uncommon, and it is seldom that people know what to do in such cases, in the absence of a skilled physician; yet relief may be surely and quickly obtained by pouring the white of an egg (raw) down the sufferer's throat. This remedy never fails because the egg will slip down the throat and render the obstruction so smooth that it will readily pass on down. This remedy is just as effective for animals as for human beings. To administer the dose to an animal, however, is not always easy. The correct way is to place the white of the eggs in a bottle, raise the animal's head, thrust the bottle well back and empty.

WHEN POISON HAS BEEN ACCIDENTALLY SWALLOWED no emetic is better than mustard. Mix three teaspoonfuls with a cup of warm water and swallow. At once the stimulative action upon the stomach causes that organ to reject all its contents, the poisonous ingredients with the rest. The emetic of mustard leaves no ill effect behind it, but instead a feeling of pleasant warmth and stimulus. It is one of the quickest of all emetics and the most harmless.

COMMENTS.

WAR FUND.—The Agricultural Society's War Fund contributed to by the Branch Societies, will now be closed. The latest subscription is from the Bamboo Branch in St. Ann, one guinea. The total is now £154 18s. 11d.

AUTHORIZED PERSONS.—Each Branch Society should keep strict supervision over the "Authorized Persons" connected with their Branch, and they should not fail to let the General Secretary know

of any changes, i.e., if an "Authorized Person" dies, or one goes abroad, he should be advised so that the Police Department can be advised also.

HONEY.—The increased cost of sugar should also benefit the trade in honey but probably not to such an extent as might at first be supposed. Sugar—that is sugar of commerce—is a necessity; honey is a luxury; yet every sweetening agency that is pure should follow sugar in price, though not comparatively. At any rate, apiaries should have increased and careful attention to make the most of them.

LARGE CORN YIELDS.—In the boys' corn-growing contest in east Tennessee, conducted by the "Knoxville Tribune," yields were secured ranging from 84.12 bushels up to 117 bushels of moisture-free corn. The weight of the corn when gathered runs from 128.78 to 134.43 bushels. The largest yield was secured by Vincent Hamilton on red upland soil during a year of exceeding drought.

The Breeders' Gazette.

COCONUTS.—We have received from a Coconut plantation on the Pacific side of Central America some seed nuts which are very round, and on opening them we found the husk to be very thin and the nuts inside very round. We have sent some out as samples and we have set out some to sprout here. We are told, too, that they are rapid growers and we think that this is quite likely as some of them had already started to sprout on the journey.

POTATOES.—We have imported this season 300 barrels of seed potatoes. These were all inspected here, except the last lot which was in haste to be sent out as they were late arriving and those touched with rot, or scab or by the machine in lifting were sorted out and only first class potatoes re-packed. Here is one of our acknowledgements:

"Potatoes arrived safely and in excellent order. They are what I consider A 1 plants, and it won't be the fault of the plants if I don't get an A 1 crop."

SOY BEANS. The Soy Bean is a Japanese Bean; we have written about it several times in the JOURNAL. It is the most nutritious Bean of all—rich in protein and oil. There are large exports of this Bean from Japan, Manchuria and China, to the United Kingdom where the oil is expressed and the remainder used for a cattle food. The Soy Bean, however, as it is grown is a most nutritious human food and if we can grow it successfully it will be a valuable addition to our legumes. It is now largely being grown in the Southern United States. We can send sample packets at 3d., if any one wishes to try it.

MOONSHINE.—A good many people in a good many countries have fads about the moon in connection with agriculture. They will only do this and that when the moon is full or when there is no moon. But there is no definite information on record as to the results of doing this and that when the moon shines at night against doing this and that when the nights are dark; and we are inclined to think that the idea that the moon has any particular influence on our agricultural practices is all "moonshine." If those who hold beliefs to the contrary will write us their experiences it will be a subject worth discussing.

CUT WORMS AND CATERPILLARS, which destroy the young corn as it springs, can be prevented from causing loss, by poisoning them. The danger in laying poison is that domestic stock and such wild birds as Nightingales may be poisoned also. This also can be prevented. Get plenty of small bamboo pots ready. Then mix 1 part Paris Green (which contains Arsenic) with 20 parts of Corn Meal or Banana Meal with some thick sugar syrup or the familiar "wet sugar" to make a stiff dough. Place balls of this in the bamboo pots and set the pots all through the corn just at planting. Mice or rats which eat out the corn grains as they germinate, will also be poisoned.

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NORTH DAKOTA'S PRIZE CORN-ACRES.—In a Boys' Acre Yield corn Contest conducted by the North Dakota Experiment Station the highest yield was 98.8 bushels. This entitles the union to the first prize of \$75 for the southern section as well as the grand prize of \$100 for the best acre of corn in the state. The next best yield was 76.4 bushels, which entitles the minor to the first prize for the northern section. Nearly 700 boys entered the contest. The average yield of the 16 prize-winners in the southern section was 70.6 bushels and the average of the 15 prize-winners in the northern section 62.3 bushels. The state average is 28 bushels and the average for the United States is 25.8 bushels.—*The Breeders' Gazette*.

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KEEPING CORN.—We hope before long to be able to send out Naphthalene for keeping Corn in small tins, very cheaply. One difficulty has been to get at this time, tins cheap enough to bring Naphthalene within the reach of the poorest man. We hope to be able to send out small enough tins containing a quantity that will do for a barrel (say 3 bushels) of Corn. A flour barrel is a common receptacle for keeping Corn; at any rate it is a convenient measure just as a kerosene box is a convenient measure for a full bushel. All that will require to be done we hope is to punch three or four holes in the tin, and drop it in the bottom of the barrel and fill in the Corn. Or get a bamboo pipe and put it in the middle of the barrel and fill in the corn and then drop the tin of Naphthalene in. This we hope will save trouble measuring out small quantities and putting it in a cloth.

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GUINEA CORN.—We are glad to note that Guinea Corn has been fairly well raised throughout the Island last season, far more than in any year in our recollection, but yet nothing like in the old times we hear about. We have written very freely on the subject of Guinea Corn, and yet we receive queries which show that the nature of the White Jamaica Guinea Corn is not yet understood. No matter when planted it will only bear about the January following, so that if planted in March or April it occupies the land a long time, but where green forage is wanted the stalks can be cut down in July for feed; the ratoons will spring immediately and a good crop of grain will accrue in January all the same. But where the seed only is wanted, planting in August is time enough. The Red Guinea Corn on the other hand, as we have so often explained, will bear any time within four months. Unfortunately seed of this variety is scarce and we have sent out nearly all we had. We expected to get a fairly large quantity in stock but were disappointed.

TICKS.—The greatest pest we have in Jamaica is the Cattle Tick, which infests our pastures. Where it exists in quantities it depreciates the value of the land as it is a great drawback to the stock in the pastures. Attacks of ticks on young stock depletes their vitality. causes them to be slow of growth and, in many cases, to be anaemic. The same applies to older stock. In addition tick-infested pastures are banned places to the households of those who own them, who might otherwise enjoy pleasant strolls. Instead, they are debarred from venturing into these pastures at all, and often do not even know the property on which they live. As for our tourists who, undeterred by tales of ticks, venture into some of these pastures, they go away with tales of horror.

Persistent effort should be kept up to keep cattle clean of ticks and there is no lack of cheap material for washes and sprays. We advertise some.

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COPRA.—Owing to the low prices of Coconuts at present, and the effects of the long drought of last year in some districts, causing the nuts to come small there, copra is being commonly made this year. In order that this product may keep well it should be thoroughly dried. We are told that some small settlers think that it is good to keep the kernels whole and they take some pains to chip off the shell so as to do this. This is time and trouble badly spent, for though the small nuts may have no milk in them, they cannot dry properly unless they are cut open. Such small nuts should be halved and then placed in the sun, concave side up. When the meat is dried it separates from the shell itself and saves the trouble of scooping it out when the nut is freshly opened.

A better Copra, however, is made by splitting the coconuts open and scooping the kernels out in three or four pieces, according to size. These dry more quickly and more thoroughly.

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CORN.—"In the early part of September I put away 15 bushels of Corn in 5 barrels. I sunned the corn for one day. In the bottom of the barrel I put a Tobacco tin with Naphthalene (Crystals). I perforated the tin. I am using the corn after 4½ months; it kept quite free of weevils except for one inch at the bottom. The Naphthalene started to rise directly it left the tin, so that the corn at the very bottom did not get any of the fumes, except just around the tin.

I would suggest that the Naphthalene be spread lightly over the bottom of the barrel and covered with a piece of muslin and the corn thrown on to that."

THOS. POWELL.

Hibernia, Mile Gully,
30/1/15.

[A bamboo pipe put through the corn (joints punched out of course) with a few crystals of Naphthalene put in will keep the corn at the bottom easily and safely. The pipe should be put in when the corn is put in. A fresh supply of Naphthalene can be dropped down the pipe at any time. Thus a little at a time can be used.—ED.]

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CASSAVA.—There was a short article in the last JOURNAL on some varieties of cassava. We find in some districts that only very late varieties are grown such as cannot be used before eighteen and

twenty months of growth. A common variety of this kind is "Cotton Tree." Now at this stage (18 months growth) a late variety ought to give a very large return to be worth the time it takes to mature and the space of land it occupies during that time.

Every district ought to have quick growing varieties as well as late varieties. There are first class varieties that can be used within nine months, others in twelve months. These should be largely introduced into districts where they are not grown at present. School Gardens are a good medium to introduce these varieties into a district, and in the School Gardens they can first be tested to see how they take to the district. Sometimes a variety of cassava or sweet potato, new to a district where the plants find quite different conditions, do not grow well for the first crop, because they are not acclimated, so no one should form an opinion on the first test. Plants taken from those grown in any locality and grown again would show fairly how the variety would result in the district.

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DRYERS.—There are many growers of cocoa, coffee and coconuts who have not enough of each product at one time to justify their getting an ordinary large dryer such as a good many larger growers and buyers have now in use. Now too that coconuts are low in price, and so many are turning their attention to copra (dried coconut), and now that normal seasons seem to be returning so that there has been a good deal more rain from October to the end of February than we have had since 1906, there is a good deal of enquiry for a dryer to cost between £50 and £100, and which would do for cocoa, or coffee or copra. If a dryer is suitable for cocoa or coffee, which requires very delicate treatment, such a dryer will also be suitable for drying coconut, corn and almost any other thing that needs drying (except the family washing). Such dryers are made and we have a Catalogue before us at present. We quoted them in page 429 October JOURNAL. There is a small dryer with a capacity of 500 lbs. (wet product) costing £48 for hand power, and there is a larger size with a capacity of 1600 lbs. (wet product) costing £72 for power, when one beast would be enough. Larger sizes are made with a capacity of from 21 to 252 cwt. of coffee and cocoa.

The local Dryers made for Banana Figs should be useful also for drying Copra.

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DISEASES OF BANANAS.—Our bananas in Jamaica have been so long immune from disease that now that we have some diseases creeping in it is hard to get people to believe that they need to alter their methods to meet the possibility of serious trouble coming in.

One of the chief causes of illness among human beings and live stock, is the lack of sanitation and hygiene, and the same conditions will invite diseases among plants.

Along the roads where bananas are growing—and as bad as anywhere in the premier banana growing parish, St. Mary—are to be seen in small settlers cultivations and in large plantations too, dead banana trees, cut stumps of different heights, rotting away, old butts lying as they have fallen, and other signs of carelessness and indifference that are as dangerous to bananas as the bodies of dead animals would be to human beings if they were left lying about in a city street. Very few growers of bananas ever take

out the useless old heads of trees but the foul smelling stumps are left to rot away. These should be dug out and a handful of lime flung in. What a grower could allow in his bananas four years ago with impunity, he should realise he cannot let alone now. Look out for trouble if these ways are allowed to continue.

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TORONTO EXHIBITION.—We regret that, owing to the necessity of conserving the finances of the Colony at the present time, the Government has not been able to make a grant for Jamaica to be represented at the Toronto Exhibition this year.

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West Indian Permanent Exhibits in Canada.—

A permanent West Indian Exhibit has been opened in Toronto, which, it is contemplated, will be extended to Montreal, Winnipeg, and other Canadian cities.

This scheme of Permanent Exhibits is an attempt to supplement the good work of the Toronto Exhibition by providing one or more centres, where West Indian products are shown and offered for sale, and where enquiries may be made and answered with regard to business in West Indian products.

The promoters state that the exhibit forms a retail depot where we can get in touch with the actual buyers, and sell to them direct. The location is in the heart of the city, and we have a fine up-to-date establishment with a large electric sign, etc. The whole exhibit is considered a great credit to the British West Indies in every way. We shall sell only the best of produce, and the prices, of course, must be low enough to sell satisfactorily.

The great drawback of the exhibit at the Toronto Exhibition has been the fact that there has been no one to follow up the enquiries and we hope to fill the deficiency.

The success of the Jamaica exhibit at Toronto for the past few years, and the enquiries that have been made for the products of that colony, seem to have led to the establishment of the Permanent Exhibit, and at the present time the goods on hand are largely from Jamaica. It may however be well for the Exhibition Committees of all the British West Indies and British Guiana to get into touch with this enterprise, as affording a means of establishing a closer relationship between producer and consumer in the matter of tropical produce in the northern markets.

Additional information may be obtained from Mr. Lewis W. Clemens, West India Permanent Exhibits, 71 King Street West, Toronto, Canada.—*The Agricultural News*, 30/1/15.

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CORN.—We have been greatly pleased through letters from correspondents and our observations while travelling to note the large quantity of corn that has been raised and is being raised now. Planting began in August where good seasons prevailed, but a good many districts had to wait until October for seasons, so that we shall be getting corn coming in right on to May.

Then the quality of the corn has been very much improved. We saw some corn bought in the ordinary way for horse feeding in a district, without being selected in any way, and there was hardly any little round bullets of corn such as are generally seen; the grains were all as good as the imported product. The large proprietors too

have been taking great interest in corn growing and have grown large fields so that we feel sure that our large imports of corn must be cut down. Then again in districts we have travelled in, we have not seen more preparations to plant corn and more corn being planted since the year 1906. People seem to have confidence that our good seasons have returned. We do hope that this will be so. The demand for selected seed corn is very gratifying. While we send out fairly large quantities those who have got seed from us in years past and have been inspired by our articles in the JOURNAL, have raised such good corn themselves, that there are many distributing centres throughout the Island. We are glad of this. We know of planters who have sold from 10 to 20 bushels for seed all having been taken from selected cobs. We have sent out some 40 bushels ourselves, and if we had got our stock in early enough could have sent out larger quantities.

We are watching the corn growing industry very closely, as while there has been great improvement, we require to watch that we do not breed our corn too fine. We are having tests made between ordinary red corn, a direct cross between red and yellow, and an almost pure yellow corn carefully selected for seed; all under the same conditions.

A correspondent writes us as follows:—

“Seed corn obtained from you will give double the crop of the native corn planted beside it at same time.”

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SEED CORN.—We have been asking for Reports of results from those who received Seed Corn last year. We began to issue Seed Corn the last week of July last, and continued to the end of October. Drought prevailed in St. Mary and St. Ann until October, and a good many did not plant until that month. We should like, however, to get results in bushels from quarts planted, but very few people seem to keep accounts and notes of results of their corn-growing.

“I have to report that the seed corn purchased from you last September has proved most satisfactory. It was planted during the months of September and October and germinated finely. The land had been thoroughly prepared and corn grew rapidly and we began to get roasting ears by the 15th of December. I fed to my stock all inferior plants during the growing stage. The crop harvested has shown a large proportion of well filled ears of fine large kernels, and I am disposing of much of it as seed corn.

I found the earliest planting and the Southern hill side exposure has given best results. I cannot give net results in bushels as so much was consumed in the green stage, but I am satisfied that careful selection of seed planted on well prepared soil pays handsomely.”

H. B. W.

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CORN.—“I have just taken in corn from my School Garden, and there are some fine seeds, which are in great demand by parties desiring to plant.

A dressing of your “Slug Shot” saved the crop from Caterpillars.”

W. F. JONES.

Woburn Lawn, Hagley Gap.

[In this way the School Gardens are beginning to form distributing centres for good seed. In the same way varieties of Sweet Potatoes and Cassava, new to some district but known to be the best in other districts, may be tested locally against those usually grown, and if they give better results, can be introduced. This has been done and is being done, but we commend it to be done generally.—ED.]

:O:

BANANA MEAL.—We ought to be able to do a good business during war times in banana figs, as these form a concentrated, palatable, digestible and very nutritious food. What a nice present for soldiers in the trenches a packet of banana figs would be!

Dried banana chips are still being exported from here; they are ground into meal in London, as better grinding and sieving facilities was got there, and banana flour is now being used as a food in the French Base Hospitals.

We feel that this Island is losing great opportunities—especially when its market for bananas in the ordinary form is likely to be depressed—in not putting forth some combined effort to get our fruit put in the market in the form of banana figs and banana chips.

:O:

WAR GIFTS.

We shipped by the s.s. "Chagres" on the 8th February, the following as War Gifts for the wounded soldiers in the military hospitals in the United Kingdom and France, and also to the sailors in the North Sea Fleet.

We have been a little disappointed in the quantity of Preserves supplied to us for this purpose, but Guavas were out of season and we had to fall back on Grape Fruit Marmalade which is a novelty abroad and likely to be very much appreciated. We should like to make another shipment entirely for the sailors in the North Sea Fleet, but it would require to be a substantial one as the crews on some of the ships number 1,000 men. We have done pretty well in shipping fruit to our wounded soldiers, but we have not done much yet as regards our sailors stationed in the North Sea, who are enabling us to live in peace and security in Jamaica and to receive and send shipments safely.

To send preserves in Jars is very expensive. and after all. the quantity each contains is a mere trifle. We think therefore to send Guava Jelly, which if made stiff keeps and travels well, in tins of say 10 lbs. weight—such tins costing less than one jar containing 1½ to 2 lbs.

When the season for Guavas comes around there are enormous quantities available and we think large quantities of Jelly ought to be made by those who have the skill and opportunity. In this way those who are far away from the fighting centre, can be doing something.

Boxes of.
Oranges. Grape Fruit.

J. H. McPhail, "Tulloch, Bog Walk, Free Gift	34	
The Hartlands Co., Ltd., Hartlands	..	12
H. C. Bennet, "Tarentum," Spanish Tn. "	..	25
Robt. Craig, "Danks-Savoy" Chapelton "	18	3
Hon. Geo. McGrath, "Charlemont", Ewarton "	12	12
Sir Jno. Pringle "Cape Clear" Clonmel "	..	25

The shooks and wrapping paper were supplied for the following, the fruit, labour and road transport, being a gift:—

Per J. H. McPhail, Bog walk:—

Estate J. C. Leceane, Bog Walk		40
Robt. Lindo, Linstead	...	26
Jno. T. Baylis, "Berkshire Hall" Linstead	..	6
R. A. March, Linstead	..	10
P. A. Moodie (Jnr.), Riversdale	1	2
Miss Anna Crossley, "Kendal Lodge" Buff Bay	..	4
Anthony Benn, "Mt. Holstein" Spring Hill	6	..
Mrs. Hudson, "Lloyd's Estate" Guanaboa Vale	..	50
Hon. J. R. Williams, "Kew Park" Bethel Town	..	12
H. E. Crum Ewing, "Knockpatrick", Mandeville		
2 lemons	2	6
Mrs. W. W. Wynne, "Brokenhurst" Mandeville	19	6
Capt. Alex. Bonitto "Battersea"	25	..
H. A. Jacobs	10	10
F. S. Sturridge	17	..
Mrs. R. A. Manton, "Berwick"	20	10
A. M. Lewis	31	8
E. W. Muirhead	56	..
E. E. Calame, Mocho	1	
A. A. Green	1	5
Spaldings Branch, Clarendon	38	12

Per S. A. Hendricks, Porus:—

D. D. Phillips, 5 oranges, 2 grape fruit	}	28	5
Hall & Smith, 2 oranges			
Thos. Cole, 1 orange			
Henry Murray, 1 orange			
S. A. Hendricks, 19 oranges			
B. McKenzie, 1 grapefruit			
A. S. Rose, 2 grape fruit			

Per W. J. McCausland, Balaclava:—

Dr. W. O. R. Lofthouse
G. Hendricks
Maidstone Branch

Per Comfort Hall Branch:—

Mrs. Mary Ann McLeish, Joseph Thompson, Miss Jane Prayagg, Wm. Isaacs, Jas. Saunders, Sam. Hendricks, Chas. Horton, Uriah Hibbert, Jas. E. Williams	}	10	14
Jas. Nash, Mrs. Susan Hendricks, C. McLeish, Alf. Powell, Mrs. Cath. Freckleton			
Jas. Newman, W. E. McLeish, D. S. Williams, R. A. Munroe			

Per Thos. Powell, Mile Gully:—

Mrs. Lucy Carnegie, 5 boxes grape fruit	}	3	17
Wm. Myrie, 3 boxes grape fruit			
Alfred Harriott, 1½ boxes grape fruit			
Jos. Lattrie, 2 boxes grape fruit			
Thos. Powell, 5½ boxes grape fruit			
Jos. Lattrie, 1 box oranges			
Isaac Boucher, 1 box oranges			
Alex. Boucher, 1 box oranges			

Mrs. H. E. Bolton, Gordon Town	8	2
Mrs. T. D. McNee, "Mt. Olivet" Walders- ton	1	..

Total No. of boxes 2 lemons 341 312

Ginger Sugar.---

Mrs. T. D. McNee, "Mt. Olivet" Walders- ton	1 box
Dr. E. V. Halliday, Christiana	2 boxes
	3 boxes

Preserves.---

Mrs. W. W. Wynne, "Brokenhurst" Mandeville	20 lbs.
Mrs. H. E. Crum Ewing	24 "
Mrs. H. W. Griffiths	18 "
Mrs. Harry Cork, "Parkmount" Port Antonio	24 "
Miss Phyllis Cork, "Barbican" Liguanea	18 "
Eustace Hall, The Hall Mark Preserves Co., Kingston	28 "
Miss Sylvia DaCosta (Money collected £3 12/- to be spent on War Gifts--Guava Jelly)	140 "

Total Weight 272 "

Banana Figs.---

J. O. Mason, Orange Bay, 5 boxes containing	500 lbs.
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Banana Meal.---

Lionel Hawthorn, "Guilbro", Latium (not yet shipped)	1 bag of 272 lbs.
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WAR GIFTS.

The following are some of the acknowledgements of our supplies of Oranges and Grape Fruit which were sent on by this Society and distributed through the West India Committee in London.

We published a list of the generous donors in the December JOURNAL. The fruit acknowledged here was our second shipment sent off by the s.s. "Aracataca" on November 22nd, which arrived just in time to be distributed before Christmas, the total being 953 packages. These acknowledgements will no doubt be of interest to those who provided the fruit. We publish only a few of these, beginning from the South of England and going right up through England to the North of Scotland. We also include some acknowledgements from Wales and Ireland.

It will be seen that the fruit arrived for the most part in excellent condition. Among the 275 acknowledgements which we received in all, there were only two complaints--in one case the fruit was damaged, and in the other the fruit (which went to Dingwall in the North of Scotland) was frosted. Ed.

Empress Eugenie Hospital, Farnborough Hill, Farnboro', Hants.---

Lady Young wishes to thank you a thousand times for the beautiful present of grapefruits and oranges which are much appreciated by the wounded officers here.

Lady Young has informed H.I. Majesty the Empress Eugenie, who, would like her thanks expressed to the Jamaica Agricultural Society.

The Princess Club Hospital, 106 Jamaica Road, Bermondsey, London, S.E.---

President:--H.H. Princess MARIE LOUISE of Schleswig-Holstein.

Her Highness, Princess Marie Louise of Schleswig-Holstein wishes me to convey

to you her most grateful thanks for the present of oranges and grapefruit sent by the Jamaica Agricultural Society to the sick and wounded soldiers at this Hospital. The fruit arrived in good condition and was very much appreciated by the soldiers at their Xmas dinner.

Will you kindly let the Jamaica Agricultural Society know this when you are writing.

(Sgd.) CHARLOTTE W. CLEPHAN,
Matron.

Royal Naval Hospital, Haslar, Gosport, (England).—

With reference to your letter of 18th December, I beg to inform you that the 6 boxes of oranges and grapefruit duly arrived on the 4th inst.

The fruit was in very good condition, and is being much appreciated by the patients able to participate in their distribution. Kindly convey most sincere thanks on their behalf to the Jamaica Agricultural Society, and to your Committee.

(Sgd.) J. JOHNS,
Surgeon-General, R.N.

Cambridge Hospital, Aldershot.—

I beg to acknowledge receipt on 24th inst. of 13 boxes of fruit presented by the Jamaica Agricultural Society, to the sick and wounded under treatment in this hospital.

The consignment arrived in good condition and was much appreciated, and I shall be glad if an expression of my thanks may be forwarded to the Society for their very acceptable present

(Sgd.) H. L. G. CHEVERS, R.A.M.
Major.

Bristol Royal Infirmary, Bristol.

President:—Sir GEORGE WHITE, F.R.

Do please convey to the Jamaica Agricultural Society our most grateful thanks for their splendid and welcome gift of 10 boxes of Oranges and 2 boxes of Lemons which are particularly appreciated just now.

With very many thanks for all your kindness and the season's compliments.

(Sgd.) W. E. BUDGETT.

St. Thomas's Hospital, London, S.E. —

Matron desires me to thank you very much indeed for the most kind gift of oranges and grapefruit received from the Jamaica Agricultural Society which has arrived in excellent condition, and will be so much appreciated by our wounded soldiers here. It is so kind of the Society to think of such an appreciable gift.

London Hospital, Whitechapel, London E.—

It is with great pleasure that I write to thank you and the members of your Society for the generous and splendid gift of 1 dozen cases of oranges which you have so kindly sent for the enjoyment of the wounded soldiers under our care in this Hospital.

They so deeply appreciate your thought of them from so far across the seas, and they have welcomed this Christmas present in the spirit of goodwill in which it has been sent.

Altogether we have had the privilege of caring for over fourteen hundred of these brave men since the war began, and about 100 will be spending Christmas with us, which we hope to make as quietly happy as is possible this season with the war overshadowing all, as it must inevitably do.

With sincere good wishes for the New Year, and once again with warmest thanks for your gift.—

(Sgd.) EVA C. E. LUCKES,
Matron.

First London General Hospital, Camberwell.—

Thank you so very much for your promise of 2 boxes of grape fruit, 10 boxes of oranges and one box of mixed fruit from the Jamaica Agricultural Society. I am certain they will be greatly appreciated, and the kind thought from friends so far away will I know add to their value immensely.

We are most grateful for we are doing our best for our wounded soldiers this Christmas to make it happy, and the help and thoughtful kindness of our good friends, far and near, are making it possible.— Would you kindly thank the Jamaica Agricultural Society most heartily from us.

(Sgd.) M. ACTON, Matron.

Highfield Red Cross Hospital, Worcestershire.

Quartermaster:—Lady GEORGINA VERNON.

I am writing to express the grateful thanks of myself and the soldiers in this Hospital for the generous and welcome gift of grapefruit and oranges from the Jamaica Agricultural Society. The grapefruit were a special treat as they had not had any before, and also they arrived in such perfect condition.

(Sgd.) GEORGINA VERNON.

Victoria Infirmary, Northwich, Cheshire.—

Will you kindly convey to the Jamaica Agricultural Society our grateful thanks for their very generous gift of Oranges and Grapefruit; they are much appreciated. I am quite sure, could the donors see the enjoyment and pleasure the soldiers have shown, they would feel amply repaid for their kind thought.

(Sgd.) A. E. KUBLE,
Matron.

Norfolk and Norwich Hospital, Norwich.—

I am desired by the Board of Management of this Hospital to acknowledge with grateful thanks the receipt of your Committee's kind gift of 10 cases of oranges from the Jamaica Agricultural Society, for the wounded soldiers in this Hospital. They arrived in excellent condition and were very greatly appreciated by the 150 patients in the Hospital.

(Sgd.) FRANK G. HAZETT,
Secretary.

The Lady Forester Hospital, Much Wenlock, Shropshire.—

We received this morning the box of oranges, sent from the Jamaica Agricultural Society. The oranges are very choice and in splendid condition. The soldiers will enjoy and appreciate them very much, and send their warm thanks to you and the Jamaica Society.

(Sgd.) M. SMITH,
Matron.

General Hospital, Nottingham.—

I beg to acknowledge with very many thanks the receipt of 4 boxes of Oranges and 2 of grape fruit, which arrived just before Christmas and in good condition.

The wounded soldiers so very much enjoyed the former gift from the Jamaica Agricultural Society and very much appreciated the splendid quality of the fruit. They are equally enjoying the present consignment, they also very much appreciate the kindness of the Jamaica Agricultural Society in so kindly thinking of them.

(Sgd.) GERTRUDE KNIGHT,
Matron.

Red Cross Hospital, Wainfleet, Lincolnshire.—

It was most kind of you to send us another case of your lovely oranges. I waited to write thinking another batch of wounded would have arrived, but owing to the East coast raids they have not sent us any cases for the last two or three weeks.

There are about 26 wounded Belgians in a Hospital near here (Spilsby) so I am giving oranges to them and to our own 15 Belgian refugees who are so grateful for them. Two of them have been ill and the oranges have been a real boon. I am keeping the firmest on a shelf hoping they will keep till we get more patients. I also have given a few of the oranges to the children of soldiers and sailors on foreign service. Once more our most hearty thanks to your kind Committee.

(Sgd.) EDITH P. TINDALL,
Matron.

The Military Hospital, York.—

I am deeply grateful to the Jamaica Agricultural Society for their present of 3 boxes of oranges and 1 box of grapefruit for the sick and wounded.

The fruit is excellent, it arrived in very good condition. I know the patients will greatly appreciate it.

(Sgd.) A. B. CAMERON,
Matron.

Wykeham Abbey, Wykeham, Yorkshire.—

The two boxes of oranges and one of grapefruit, sent by the Jamaica Agricultural Society for the sick and wounded in this hospital, arrived safely last week.

The fruit is in excellent condition, and the soldiers have enjoyed them most thoroughly and are still doing so. On their behalf I send most grateful thanks to the Jamaica Agricultural Society.

First Northern General Hospital, Armstrong College Hospital, Newcastle-On-Tyne.—

I beg to thank you for the gift of 10 cases of oranges and 2 boxes of grape fruit which arrived in good condition on Saturday. It is a most acceptable gift and much appreciated by our soldiers and sailors. You will be interested to hear that we received another 170 members of the Expeditionary Force yesterday, so they also came in for some of your gift; I shall be much obliged if you will convey our hearty thanks to the Jamaica Agricultural Society for this gift.

(Sgd.) GRACE A. PRESTON,
Matron.

Howard Gardens School, Headquarters, Cardiff.—

On behalf of the Commanding Officer I beg to acknowledge with grateful thanks receipt of the consignment of 10 boxes of oranges and 2 boxes of grapefruit and 1 box of mixed fruit which the Jamaica Agricultural Society have been so kind as to supply for the wounded soldiers of our Hospital and which I am sure will be much appreciated by them.

(Sgd.) EWEN J. MACLEAN,
M.D., Major, Registrar & Adjutant.

Military Hospital, Fermoy, Ireland.—

Many thanks for the gift of fruit to hand. Will you kindly convey to the Jamaica Agricultural Society the best thanks of the sick and wounded of the Expeditionary Force at this Hospital for the generous gift which I assure you is highly appreciated.

(Sgd.) I. F. Brodic,
Lt.-Col., R.A.M.C.

King George V. Hospital, Dublin.—

I am writing to thank you very much for the splendid present of oranges and Grapefruit from the Jamaica Agricultural Society. The fruit arrived in excellent condition and will be thoroughly enjoyed and appreciated by the wounded soldiers here.

Thanking you again.

(Sgd.) M. WALKER,
Act. Matron.

The Managers of the Royal Infirmary of Edinburgh return their best thanks to the Jamaica Agricultural Society per the West India Committee, London, for the kind gift of 5 boxes oranges and 1 box grape fruit for the use of the soldier and sailor patients under their charge.

The fruit will be distributed to our sick and wounded who are very grateful to our West Indian friends in Jamaica.

(Sgd.) R. MCKENZIE JOHNSTON, F.R.C.S.,
Superintendent.

Second Scottish General Hospital, Craighead, Edinburgh.—

The Matron desires to thank the Jamaica Agricultural Society very much indeed for the delightful present of oranges and grapefruit which they have been good enough to send to this hospital for the wounded and which is much appreciated.

Hospital Gifts Committee, 2 Alford Place, Aberdeen.—

On behalf of the above Committee I wish to send warmest thanks to the Jamaica Agricultural Society for their most generous and beautiful gift of fruit to the wounded soldiers in Aberdeen.

The 13 cases came yesterday in good time for the Christmas dinner. The "First Scottish General Hospital" fills four Hospitals in Aberdeen and each one had plenty of fruit thanks to their most kind gift. The tables looked quite beautiful with the dishes of fruit in amongst all the plum puddings and especial sweets.

We shall be greatly obliged if you will convey our heartfelt thanks to the Jamaica Agricultural Society for so generous a gift.

(Sgd.) HELENA BAILLIE,
Chairman of Hospital Gifts Committee.

Ross Memorial Hospital, Dingwall.—

Would you kindly thank the Jamaica Agricultural Society for the box of oranges received yesterday, in good condition. The patients enjoy them very much and wish to add their thanks.

(Sgn.) pro A. CROSS,
A. MACKINTOSH.

—:O:—
BRANCH NOTES.

SCOTTS HALL (St. Mary).—The meeting was held in the schoolroom on Wednesday, 3rd February, at 5 p.m. Present were: Rev. J. Gordon Hay, J.P., in the Chair; W. Cradwick, Esq., Agricultural Instructor; Messrs. E. A. Gunter, Assistant Instructor, and about 28 other members. Prior to the beginning of the meeting, the Instructor and his Assistant gave a practical lesson in "Plant Surgery." A seemingly healthy cocoa tree near the schoolroom was treated. It was surprising to see the extent to which the tree was affected inside. The ready manner in which affected spots were pointed out and treated showed that Mr. Cradwick is an authority on the subject. After the opening preliminaries of the meeting were gone through, the Chairman welcomed the Instructors and expressed the pleasure it was to have them both at the meeting. The minutes were read and confirmed. Matters arising out of the minutes were left over for next meeting. The Chairman then called on Mr. Cradwick to address the members. The Instructor said he was glad to be present. His inability to be present regularly was a source of deep regret to him. He was willing to come but it was the bad luck of the society as all previous arrangements fell through from one cause or another. He is anxious to get into the district as he has something practical to teach. He then gave a very interesting lecture on the pruning of cocoa, calling special attention in the course of it to the demonstration he had just carried out. This made the address more interesting. Continuing he dealt extensively and very interestingly with the Prize Holding Scheme and encouraged the members to begin at once and enter. All were deeply interested. The Chairman thanked him for the fine address and especially for his remarks on the Prize Holding Scheme, which was made more plain and interesting to the members. Mr. Gunter next spoke corroborating all that was already said on cocoa pruning and telling of his meeting with Mr. Cradwick and the experience and success he has achieved on his small holding since. He spoke of Mr. Cradwick's high worth and the success he has achieved in cocoa-pruning in Jamaica, and finally encouraged all to follow the instruction that had been given. The Secretary next spoke thanking the Instructor for the demonstration of the evening and promising to follow it up and as long as he is in the district to see that others follow. He was determined to watch the result keenly and to always call the members attention to the result, which he was certain would soon be seen. Mr. Campbell spoke expressing his gratitude for what he had seen and heard that evening, and promised to enter for the Prize Holding Competition. The meeting was brought to a close by the singing of the National Anthem. G. O. HANSON, Secretary.

LUCKY HILL (St. Mary).—The regular monthly meeting was held in the Goshen Schoolroom on Wednesday, 17th instant with the President, Mr. H. Jefferson, in the chair. The day was a wet one, but there was a fair turn out of members. The Secretary read letters from the Instructor, Mr. Cradwick, re his absence from the last meeting, and his proposed visit to the district on the 23rd instant. The members felt that the reason given by the Instructor was not sufficient to justify his absence from the January meeting, in view of its importance, especially to the competitors in the Prize Holding Competition. It was the general feeling that the Branch is very much neglected by the Instructor, and the following resolution was adopted:—"That this branch of the Jamaica Agricultural Society expresses its entire dissatisfaction at the lack of interest manifested, and neglect it receives at the hands of the Agricultural Instructor, Mr. Cradwick, and points out the following facts:—(1) That this branch is the oldest in the Bagnolds district. (2) That it had in the past held these successful shows. (3) That it has only been visited once during the last fifteen months by the Instructor. (4) That no demonstrations of any consequence for the benefit of the members have ever been carried out. (5) That owing to the fact that the Instructor pays so little attention to the branch, there is a lack of interest and enthusiasm on the part of many of the members. (6) That a copy of this resolution be sent to the Instructor and to the press. A paper on the cultivation of yams was read by Mr. F. W. Geoghagan, and a hearty discussion on the subject followed. Mr. Geoghagan was accorded the thanks of the meeting. Mr. Eugene Spence was appointed to give a paper on cocoa-growing at the next meeting. W. B. CUMMINGS, Secretary.

The Journal

OF THE

Jamaica Agricultural Society.

The more people do the more they can do : he who does nothing renders himself incapable of doing anything ; while we are executing one work we are preparing ourselves for undertaking another.

VOL. XIX.

APRIL, 1915.

No. 4.

BOARD OF MANAGEMENT.

The usual Monthly Meeting of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 11 North Parade, Kingston, on Thursday, 18th March, 1915, at 11.40 a.m. Present: His Excellency Sir Wm. H. Manning, K.C.M.G., C.B., (presiding); Hons. L. J. Bertram, C.M.G., D. Campbell, R. P. Simmonds and J. R. Williams; Messrs. R. Craig, A. W. Douet, A. C. L. Martin, E. W. Muirhead, Adam Roxburgh, Conrad Watson, and the Secretary, Jno. Barclay.

Apologies for Absence.—Apologies for absence were submitted from Sir Jno. Pringle, K.C.M.G., the Hons. P. C. Cork, C.M.G., Geo. McGrath and S. S. Stedman; Rev. W. T. Graham, Messrs. H. Q. Levy and Archibald Spooner.

The Minutes of the previous Meeting, having been printed and circulated, were taken as read and confirmed.

Matters arising out of the Minutes:—

(a) *Experiments in Sea Island Cotton Growing.*—The Secretary said that at the previous Meeting Mr. Cork had asked for some particulars of the cost of the experiment in cotton growing, and he now submitted statements showing the expenditure and income of two typical plots—(1) that at New Forest conducted by this Society under the superintendence of the local Instructor, and (2) the 'Instructor's own plot. The New Forest plot showed a nett profit of £2 13/- for the cotton sold in war times at 1/- per lb.; under ordinary market conditions the cotton would have fetched from 1/3 to 1/6 per lb. This plot was grown under the driest conditions possible, and the freight to the ginnery from Alligator Pond was most expensive; if there had been a local ginnery there would not of course have been so much expense. No catch crops were grown in this plot, but any small settler who grew cotton would grow catch crops through it. The Instructor's plot was grown as a typical small settler's plot would be grown, with first, a catch crop of red beans through it, the crop of which he (the Secretary) had bought at a cheap price; usually these beans would fetch more—and a second catch crop of corn was grown. The total nett profit on this plot was £10 17s. 1½d. These plots were raised under the worst of weather conditions, with almost total failure elsewhere; he thought it was worth publishing the particulars in the JOURNAL for general information. This was agreed to, and the Secretary was also directed to send a copy of these particulars to Mr. Cork, who was absent.

The Secretary said there was a letter from the C. S. O. re Cotton, further down on the Agenda, which might be taken now. This was agreed to, and the following letter was read :—

No. 2223-2230.

20th February, 1915.

"With reference to your letter No. 4979 dated the 1th November last, I am directed by the Governor to transmit, for the information of the Board of Management of your Society, the accompanying copy of a letter from the Director of Agriculture, on the subject of the "Marie Galante" variety of cotton, together with a copy of the letter from Mr. W. Sands, Agricultural Superintendent of St. Vincent (which formed the enclosure thereto) and to ask that the latter may be published by the Board of Management, as suggested by Mr. Cousins in the closing paragraph of his letter."

(Sgd.) G. M. WORTLEY,
Acting Asst. Colonial Secretary.

The Secretary said he had submitted this letter with the enclosures to Mr. Conrad Watson for his comments.

Mr. Watson then read his comments on same, and asked that if the Director of Agriculture's letter and Mr. Sand's letter were published, his reply might be published also.

It was resolved that as under the present experimental conditions the letter might only be misleading and confusing, only the gist of the arguments on the respective merits of Cauto Cotton and Marie Galante Cotton as a perennial or ratooning cotton, might be published.

The Secretary was instructed to reply accordingly and also to suggest to the Government that as experiments with Cauto Cotton were being carried through by the Director of Agriculture, experiments with Marie Galante Cotton grown under the same conditions, might be tried also with the object of finding out which was the best perennial cotton.

(An article stating the present position of the cotton industry is published in this JOURNAL, page 136).

(b) *Panama Disease of Bananas*.—Letter from the C.S.O., No. 2822-2788/15, 4th March, 1915, was submitted transmitting copy letter from the Director of Agriculture on this subject.

Mr. Craig as Chairman of the Instructors Committee, stated that this had been dealt with by that Committee that morning.

(c) *Authorized Persons*.—The Secretary said that as Mr. McGrath at the last Half Yearly General Meeting had asked for a list of those "Authorized Persons" who had been struck off the roll, with the reasons why they had been struck off, he had written the Inspector General asking him to provide this, who stated that as his office staff was limited it would take some time to look up the record and prepare the return requested. He had only sent a note of the total number struck off, viz., 130. He (the Secretary) had not kept a record of these from the time the Law *re* "Authorized Persons" was passed, but he had prepared a list from the record for the last two years, which would give the Board a good average idea as follows:—58 persons had been struck off, of whom 12 had left the Island, 2 had left the districts, 6 had died, 12 had been appointed Rural Policemen, 5 had been found incapable, 3 had resigned, and 18 had been struck off for which no reason was stated. He had sent a copy of this statement to Mr. McGrath.

The Secretary also submitted the small pamphlet on the duties of "Authorized Persons" which he had been instructed to prepare and which had been submitted to the Assistant Attorney General and revised by him. He now asked authority for it to be printed. The Board decided that a copy should be circulated to each member of the Board first.

Mr. Craig said that while they were on this subject, he would like to nominate for appointment as an "Authorized Person," Harper

Ezekiel Tulloch, Danks Estate, Chapelton P.O. The Secretary was instructed to send forward this nomination to the Inspector General.

(d) *Estimates*.—The following letter from the C.S.O. was submitted:—

No. 3110-3087/15.

10th March, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter No. 7364, dated the 23rd ultimo, in which you intimate that the Board of Management of the Jamaica Agricultural Society had revised the items on their Estimates, mentioned by you, so as to effect a saving of Five Hundred Pounds and thus meet the reduction of the grant to the Society from Five Thousand Pounds to Four Thousand and Five Hundred Pounds for the year 1915-16.

2. In reply, I am to say that His Excellency appreciates the readiness with which your Society fell in with His Excellency's suggestion that their Estimates should be recast to meet the circumstances of the reduced **grant**.

3. With regard to paragraph 3 of your letter, I am to explain that the remark of His Excellency quoted from the letter from this Office, No. 1780, 2312, of the 11th ultimo, referred to the fact that His Excellency had been under the impression that there were two vacancies among the Agricultural Instructors."

(Sgd.) G. M. WORTLEY,
Actg. Asst. Colonial Secretary.

The Secretary said that there was some reason for paragraph (3); because the services of two Instructors had been dispensed with during the year and a saving of £400 made on these Instructors' salaries, but in place of these two Instructors, three Assistant Instructors had been appointed and were in training, at a salary of £150 per annum which made a total of £450; the deficit for this year had been made up from the saving between the time the two Instructors had left the service and the Assistant Instructors had been appointed.

Loan Banks.—Mr. Roxburgh asked if His Excellency could say whether the Government intended to allow an extension of time for payment to local Loan Banks which could show good reasons for such consideration as in St. Mary. His Excellency said that he would require notice to be given of such a question and he would reply at the next meeting.

The following letters from the C.S.O. were submitted:—

(a) *Worms in Yams*.—

No. 2038-2024.

18th February, 1915.

"I am directed by the Governor to transmit herewith for such action as your Board of Management may think it necessary to take in the matter, a copy of a letter from the Director of Agriculture relative to the reported prevalence of worms in the yams grown in some districts of St. Catherine, and a copy of the Microbiologist's report referred to by him."

(Sgd.) G. M. WORTLEY,
Ag. Asst. Colonial Secretary.

The Secretary said he had published the Report in the JOURNAL for March. He would like to draw attention to the fact that, after tests by the Microbiologist, the recommendation that had been made by the local Agricultural Instructor, Mr. Mossman, to soak the yam heads in lime wash, had been found the most effective and the most economical.

(b) *Free Railway Passes for Board*.—

No. 2343-2367.

23rd February, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter, dated the 10th instant, reporting that at the Half-Yearly General Meeting of your Society a resolution was passed unanimously that the Government be asked to allow the members of the Board of Management of the Society free railway passes to attend the Meetings of the Society held in Kingston.

2. In reply I am to say that His Excellency approves of free monthly railway passes being granted to members of the Board of Management as requested, and I am to ask you to be so good as to communicate with the Director of the Railway, as to the procedure that may be necessary in order to give effect to this decision."

(Sgd.) G. M. WORTLEY,
Actg. Asst. Colonial Secretary.

Free Railway Passes.—Mr. Muirhead said that he observed on the certificate sent to him, a paragraph containing conditions which he had to sign, stating that "the railway is not liable for any injury to person or any loss of baggage which may occur while using the tickets, whether it is caused by the negligence of the railway or its servants." He ask whether these conditions were attached to all free passes on the railway.

His Excellency said that he did not intend that these conditions should have been attached to the passes given to the members of the Board, and he would communicate with the Director of Railway, and have another form of certificate issued.

Orange Oil.—The Secretary said that at the last Meeting, Mr. Muirhead had asked for a return of the exports of Orange Oil, and he (the Secretary) now submitted the following letter from the Collector General:—

No. 152-865.

24th February, 1915.

"In reply to your letter No. 7258, dated the 22nd instant, I have the honour to state that no separate account is kept of the Oil made from bitter and sweet oranges respectively. The exports of Orange Oil in each of the last two years were as follows:

1913	852 pkgs.	£13,742
1914	1440 "	£16,378

(Sgd.) A. H. MILES,
Collector General.

Competitions.—The Secretary said that the results of all the Competitions should have come in at the latest this month so as to be included in this financial year, but as he had reported at last meeting, it was impossible to get the judging in the Prize Holdings Competition finished in St. Mary where there were 125 entries; the judging was going on just now.

In St. Ann, the Instructor after consultation with the various Branches in the district, had recommended that the Prize Holdings Competition there, should be postponed for next year as conditions had been unfavourable in the extreme and the Competitors could not be ready.

The judging in the Special Competitions in Manchester could not be finished this month. It had often been recommended that in order to show what the Instructors were doing, and in order to create interest in these Competitions, the services of some gentlemen of the parish should be secured to help with the judging. This was all right in theory but it did not work out well in practice. The Instructors were bound by their Itineraries to do certain work at a certain time, but private individuals who were willing to co-operate with the Instructors, often found that private engagements at the last moment prevented their fulfilling their appointments with the Instructor, and so put him out.

The results in these Competitions in Manchester would be given next month.

The Special Competitions in Hanover, however, had been judged

by Mr. E. E. Melville, and he was able to present a most interesting report which would be published in full in the JOURNAL.

The judging in the School Gardens Competitions had all been got through. He asked for authority to pay the prizes won in these Competitions. This was authorized.

The Secretary also presented Reports *re* the Corn Growing Competition in Mid Clarendon got up by the May Pen Branch, and to help which the Board had granted £3. This fortunately had been a great success and the figures presented would be very interesting.

The Secretary said there had also been a Barbecue Competition in Clarendon for prizes presented by the Clarendon Show Committee.

He proposed to publish the results of all these Competitions in the JOURNAL. This was approved.

War Gifts.—The Secretary said he had published in the JOURNAL full statements of the War Gifts sent away. As he had now spent all the allocation made, and as the Orange and Grapefruit season was over, he proposed to close down.

His Excellency said it would be a pity to do this if anything more could be sent, and he would see if a further grant could be made by the Committee.

Mr. Roxburgh said that there would be a mid-year crop of Oranges in St. Ann, ready in about 6 weeks, and as they in that parish had not had the privilege of supplying anything already, as the Secretary could get more than he wanted more easily along the railway line he thought they might avail themselves of the opportunity to get Oranges from St. Ann.

Mr. Muirhead said that Oranges were out in Manchester, but there was still Grapefruit and there would be Lemons which would be very useful in the summer time.

The Secretary said that if the money was provided to pay the expenses of getting these War Gifts off, he would of course be glad to arrange to ship them. He had promises of considerable quantities of Preserves. He wanted Guava Jelly in particular, but the season for Guavas was not yet on. Instead of shipping the Preserves in small jars, he proposed to ship them in 10 lb. tins, as the cost of a tin was less than the cost of a jar containing 1½ lbs.

It was approved that the Secretary should send in a statement of the expenses for the War Gifts to date, to His Excellency, and arrange for further shipments.

Mr. Roxburgh said that as the Secretary had mentioned about Guavas, he might say that he found in parts of St. Ann that they could hardly get any Guavas because of the attacks of paroquets, and not only did these paroquets attack Guavas but the more important crop of corn to which these birds caused great destruction. He was of the opinion that these should not remain on the list of protected birds; they were very pretty but he did not know that they were of any use.

The Secretary said with regard to paroquets, while he was attending Meetings in Lower Trelawny, complaints were made by settlers there against these birds because of the damage they caused to the crops of corn. That district was now growing corn to a considerable extent, but the birds came down from the backwoods in clouds and destroyed the cobs just as they were ripening. He had promised to mention the matter to the Board. He did not think paroquets were insectivorous at all.

Mr. Craig said that before they took any decided steps about any birds, they should await the arrival of the Entomologist, who would make scientific enquiry into their habits.

The President said the Entomologist ought to arrive at an early date, and he agreed with Mr. Craig that they should defer doing anything in this matter until his arrival when due enquiry could be made.

Mr. Bertram quoted the case of the Channel Islands and Normandy. In the former birds were protected and they had no great trouble with insect pests; in the latter insect pests were a plague because birds were not protected.

It was agreed to await further enquiry by the Entomologist.

Proposed Tax on Bananas.—The Secretary said while he was away travelling, some members of the Board had asked the Acting Assistant Secretary to call a Meeting of the nearby members of the Board in order to consider the matter of the proposed tax on bananas by Canada, and he proposed to publish the Minutes to keep them on record.

Mr. Craig said that the Report in the Newspapers read as if it was a Meeting of the Board of Management; if it was, it was wrong, because all the members had not got notice.

The Secretary said the Minutes of the Meeting read as follows:—

“The following gentlemen, members of the Agricultural Society and the Merchants Exchange, and others, met, etc.” This seemed quite in order. There had been no time to notify members in the country; those of the Board present were:—Sir Jno. Pringle, Messrs. Stedman, Campbell, Williams, Simmonds and Douet.

BANANA TAX IN CANADA.

The following gentlemen, members of the Agricultural Society and Merchants Exchange, met at the office of the Jamaica Mutual at 10.30 a.m., on March 3rd, 1916, to discuss the sending of a cable in protest against the imposition of a tax on bananas by Canada:—

Sir Jno. Pringle, K.C.M.G., Hons. S. S. Stedman, J. R. Williams, R. P. Simmonds and D. Campbell; Messrs. A. W. Douet, D. S. Gideon and J. E. E. Armstrong (acting for Mr. J. Barclay.)

Sir Jno. Pringle explained the object of their meeting and the opinion of all was that although late it was very necessary that a protest should be made by the banana growers of Jamaica apart from the protest made by the Government, and a Committee was appointed consisting of the Hons. D. S. Gideon (Chairman), J. R. Williams, and S. S. Stedman, and Sir Jno. Pringle, with power to add to their number, to draft a suitable cable to be sent to the Finance Minister of Canada, and others also.

During the discussion the Hon. S. S. Stedman received copies of a cable which had been received by Capt. List of the United Fruit Co. The cable read as follows:—

“Banana tax question still pending. Strongest cables advisable should be sent Finance Minister Ottawa (more the better), cable us copies for publication. Suggest copies be sent Jamaican press who should cable Canadian correspondents, also suggest Sir John Pringle cable Mousir Secretary Canadian West Indian League Montreal informing him strong feeling in Jamaica against tax and urging that League actively oppose it.”

It being near the hour for the Meeting of the Legislative Council, of which nearly all present were members it was decided to adjourn the Meeting to Headquarter House at 1.30 p.m.

The Meeting re-opened at 1.30 p.m., at Headquarter House and the following cable as from the members of the Board of Management of the Agricultural Society and addressed to the Finance Minister, Ottawa, was drafted:—

The cablegram from the Agricultural Society runs thus:—

“Finance Minister, Ottawa.

“Members Board of Management Jamaica Agricultural Society representing

agricultura interests, island, earnestly request Canadian Government reconsider and abandon proposed imposition tax upon Jamaica bananas. Diminished demand due to war conditions and diminished supply due to local drought already seriously affect export and revenue. Gravely apprehended that action contemplated will revive similar proposals recently abandoned in United States which would have been disastrous here. Small British Colony appeals to powerful British Dominion not to increase its difficulties in present common crisis of Empire by tax injury and menace of which the Jamaican interests will be greatly out of proportion to Canadian relief, and will even prejudicially affect growing Canadian intercourse and commercial interests in colony.

"Members Board Management Jamaica Agricultural Society."

Also one to the Secretary of the Canadian West Indian League by Sir Jno. Pringle, who is a Vice-President of this League, as follows:—

Secretary Canadian West Indian League, Montreal.

"Along with numerous others I greatly regret, on patriotic and commercial grounds, to observe that it is the intention of the Canadian Government to impose the tax on bananas, our premier export. I trust our League will promptly exercise its great influence in opposing such a tax which not only will affect our revenue at this critical moment, but may also be an incentive to similar action on the part of a great neighbouring country. In this Colony according to our means we have steadily endeavoured to foster, and build up patriotic sentiment and the common interests of Canada and Jamaica.

"I therefore deeply regret that anything should arise which may interfere with what we have hoped and still hope will expand into wider commercial intercourse.

"Sir John Pringle, Vice-president Canadian West Indian League, Jamaica."

One from the Merchants' Exchange:—

To Finance Minister, Ottawa.

"Chamber of Commerce Jamaica solicit Canadian Government to refrain from imposing tax on Jamaica Bananas. If Tax is imposed fear similar action by United States. Apart from this imposition of Tax will seriously restrict the already reduced markets for Bananas which are the leading export from Jamaica.

"As a small British Colony we appeal to you a Powerful British Dominion."

"S. Soutar, President."

Mr. Stedman promised to see to the despatching of the cables, also to the publishing of same in the Press.

The Meeting then adjourned.

Branch Societies—Affiliation.—Application for affiliation from the Thornton Agricultural Society, a district near Bath in St. Thomas Ye East, was submitted.

The Secretary said that the local Agricultural Instructor had approved of this Branch and the Instructors Committee recommended its affiliation. Affiliation was granted.

Instructors.—The Instructors' Reports and Itineraries for the month of February were submitted and directed to be circulated to the Instructors' Committee as usual.

Mr. Williams said he had been desired by the Instructors' Committee to make a report to the Board on the examination of the Assistants who had been appointed on probation. The examination was held on Wednesday, and three probationers, Messrs. Martin Rennie, E. A. Gunter and W. E. Watts had presented themselves. Whilst the results left much to be desired, still they were distinctly encouraging, particularly as the examination and the study required opened up new lines of improvement from which much might be expected. With regard to their practical work, the Instructors' Committee had relied on the report of the Instructors with whom the young men had been working. The Committee recommended:

- (1). That Messrs. Gunter, Rennie and Watts be now appointed

assistants on probation for a further term of one year, subject of course to good conduct, etc.; and that they be required to undergo another examination on the prescribed course of study after nine months.

(2.) That uniform and suitable text books for their studies be procured at the cost of the Society and supplied to them at half price.

(3.) That in the course of the year at least one month should be devoted to work (principally study) and observation at Hope. It was expected that in this way the difficulties which these young men met in the way of study, while actively engaged in their duties, would to some extent be overcome. It was also recommended that Messrs. Gunter and Watts should remain under the supervision of Mr. Cradwick, whilst Mr. Rennie would be placed in lower Trelawny under the general supervision of Mr. Arnett with an addition of £50 a year to his present salary.

The report was adopted.

Statement of Accounts.—Statement of Accounts for February was submitted.

Statement of Accounts for the War Gifts sent was also submitted, showing the total number of packages sent as follows:—

1247 packages of Oranges.
 514 packages of Grapefruit.
 2 packages of Lemons.
 3 packages of Ginger Sugar (containing 150 lbs.)
 5 packages of Preserves (containing 272 lbs.)
 5 packages of Banana Figs (containing 500 lbs.)

a total of 1776 packages.

Mr. Craig said that there was a matter he would like to mention which arose out of the previous Minutes, and that was with regard to the new Diseases of Plants Law, passed by the Legislative Council. He said as the Law now read he considered that it strengthened and amplified the recommendations of this Society, which they had thought perhaps rather strong. He thought, however, that when the Field Inspectors were appointed they should be provided with a Certificate or Badge of Authority to show when entering any place. This suggestion was approved of and directed to be forwarded to the Government.

The President said that when the Law was assented to and published in the *Gazette*, they should try and get it known as fully as possible. Probably it would require to be revised as time went on.

New Members.—The following new members were elected:—

H. E. Henderson-Davis, Port Antonio.

Glaester Baxter, Spanish Town.

The Meeting adjourned until April the 15th, 1915, at 11.40 a.m.

FARINE I.

(*Extract from Journal J. A. S., Feb., 1897.*)

The making of farine in Jamaica, to my mind, is a matter of material importance; not only because it will provide a cheap nutritious and wholesome food for the people, but it will provide the means for storing the special products that are raised in those particular districts subject to periodical droughts. The question that naturally suggests itself is, why has farine not been made here already? especially when it is known that there are so many persons in the island who come from countries where it is largely manufactured and used and who understand its preparation.

Farine pans were put up in St. Vincent, chiefly at the time of emancipation, for the peasantry who grew cassava on the lands of the different properties not used for the cultivation of cane and were given permission to bring it to the pans to be cooked. When it is borne in mind that the people could prepare their cassava at home and within three hours after taking it to the pan, have it in a condition ready for food, it can plainly be seen what facilities a pan provide for those unable to procure one for themselves. A man can rise in the morning and by the next, have his flour made and stored. Very often, indeed, after being grated and pressed by the Indian method of plaited reeds, the cassava is immediately cooked for use or storage. It having been found, years ago, in St. Vincent, that the erecting of these pans by the proprietors of estates was of such material benefit, directly to the people and indirectly to the owners, that their erection throughout the island became general. Many of those put up 50 years ago are still in use and when it is borne in mind that the purchase and erection of a pan of the diameter of six to eight feet would not exceed £25, and the enormous benefits to be derived therefrom, I live in strong hopes that if a pan is brought here and proves a success the owners of properties will take up the idea and import pans to assist their employees. In St. Vincent now the pans are often used by persons who manufacture farine for sale and derive handsome profits. It is sold there readily at about 5s. a bushel, say 2d. a quart. Farine will provide in some respects a superior food to wheat at one-third of the cost. It has a special flavour of its own, and the way of making it palatable is of so simple a nature that one cannot wonder at its popularity in St. Vincent and it may prove the same in Jamaica. The farine pan, I may add, is of a peculiar shape specially adapted for its purpose, and I hope in a future article to give a description of the same, with details, of the methods of manufacturing farine.

T. H. SHARP.

Eltham Park, Spanish Town,
Feb., 1897.

—:O:—
FARINE II.

HOW IT IS MADE AND USED.

(*Extract from J. A. Journal, Aug., 1897.*)

In continuation of the article I contributed to the February number of the JOURNAL and in fulfilment of the promise I then made of furnishing a description of the Farine Pan and the method of manufacturing and using the Farine, I now return to the subject. The

Cassava Committee appointed by the Board of Management of the Society have lately imported through Messrs. Park, Macfadden & Co., of London, a full sized pan, 7ft. in diameter. The pan is made of iron, circular in shape, open at the top, with slightly bevelled sides six inches deep. The bottom of the pan is level and is about one and a quarter inches thick, in order to better retain the heat. The pan has arms which rest on a brick foundation. A brick wall nine inches thick surrounds the pan and projects in a bevel shape four inches above the rim of the pan. This is done to prevent the farine splashing over while being stirred. It is hung two feet six inches from the ground so as to be at a convenient height for a man to lean over and stir the Farine. On one side is an aperture for firing and opposite, a couple of bricks are removed from the wall for letting out the smoke; no chimney is needed.

In the manufacture of the Farine a grater is necessary, which is constructed as follows:—On a wooden wheel, two feet in diameter, is nailed a strap of Muntz Metal, nine inches wide, with rough-edged perforations half an inch apart. The wheel has a crank axle attached to a treadle, so that a man may set the wheel in motion with his foot, and, holding the tuber in his hand, press it from a feeding board, against the revolving wheel and thus reduce it to coarse meal, which falls into a trough placed underneath for its reception.

A press is also required to force out the poisonous juice from the meal immediately after the grating is over. This is made in the following way: The bag of grated cassava is placed on the top of a barrel or box which has holes bored in it. A plank having one end fixed to a post or tree is laid lever fashion across the bag with weights attached to the other end and the bag as a fulcrum. A weight of 56 lbs. resting for 12 hours on 100 lbs. of grated cassava is sufficient to express the juice.

So much for the apparatus needed. I will now proceed to explain the method of manufacturing the Farine. The sooner the cassava is used after being dug the better. Fresh cassava will give good sweet Farine; all acidity must be avoided. The tubers should be scraped, not peeled, with an ordinary knife and washed. They are then grated on the machine before described and the grated material is put in bags under pressure where it should be allowed to remain at least 12 hours. From the juice thus extracted, if allowed to settle, a small percentage of starch may be obtained and the remaining liquid can be made into cassareep after being thoroughly clarified.

After the grated cassava has been sufficiently pressed it is taken from the bags and passed through a coarse sieve—an ordinary mason's sieve does well—to separate the particles and remove the small portions of roots that were not properly grated.

A wood fire is now lighted under the pan, which is allowed to become slightly warm, great care having been taken to spread the fire under the pan so as to equalize the temperature. The cassava is thrown in and, by means of wooden rakes, it is spread evenly over the surface of the pan, the temperature of which is gradually increased by adding light fuel—split bamboo, etc. The Farine must be kept continually stirred until it is thoroughly cooked, when it will have a rich brown appearance, slightly tinged with yellow and form crisp sweet-smelling grains. During the process of manufacture the poisonous principle still existing in the cassava is removed by evaporation and the fumes may be distinctly detected by smell as they rise from the pan. Great

care is necessary to properly cook the farine. If this is successfully done as soon as water is applied to the Farine it will commence to swell to many times its original bulk. If improperly cooked it will swell very slightly if at all, and have a raw insipid taste. A small amount of salt is added to the cassava while it is being cooked in the pan. After it is cooked the Farine is again sieved and allowed to cool. The success of making Farine chiefly depends on preventing any acidity starting and the handling of the material in the pan so as to secure a uniformly cooked product, and not allowing the temperature to rise high enough, to destroy the grain of the starch while the Farine is damp.

The ordinary labourer in St. Vincent simply ties a portion of Farine in a loose piece of cloth which he immerses in water for an hour. It swells into a large ball like plum pudding and is eaten along with his fish, pear or sugar, as the case may be. Before placing it in the water he generally adds salt and pepper to his taste. There are other more palatable ways of using Farine, however, and I quote a few recipes:—

Porridge.—A very simple mode of preparation is to place 2 table-spoonfuls of Farine in a half-pint of water. After soaking for 20 minutes, boil for 5 minutes in half-a-pint of milk or water. Serve as porridge.

Puddings.—To make puddings. Take of Farine half-a-pint, add one and a half pints of luke-warm water, and allow to remain for half an hour, stirring frequently. Whisk three eggs, and add to the eggs one pint of milk, adding sugar and spice to taste. Thoroughly mix and bake in an oven for 30 minutes.

Fritters.—To make Fritters. Take of Farine half-a-pint; add five parts of milk and two ounces of flour, one egg, sugar and spice to taste. Thoroughly mix and fry in an open pan. Before serving sprinkle a little sugar over them.

Farine has excellent keeping qualities and if placed in a dry covered receptacle, without being hermetically sealed, will keep for a year or more.

T. H. SHARP.

Eltham Park, Spanish Town,
25th July, 1897.

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FARINE.—III.

(*The J. A. Journal*, Dec. 1897.)

I am very pleased to find that Farine has been placed upon the market, and that it can be obtained in Kingston. I have tried the quality that is being sold by Messrs. Pinnock & Co., and would pronounce it very good indeed. Since my residence in Jamaica I have often wondered why it was not generally used. From my earliest recollection I have used Farine, being a native of Grenada, where it is extensively used by all classes. I am convinced it is one of the most nutritious and valuable vegetable products. It can be used in such a variety of ways, either uncooked or cooked. I remember as a boy we used to mix it with sugar and eat it, dry, or mix it with our sugar and water. We would sometimes pour boiling milk over it and sweeten it. It can be used with cold water and then some meat sauce poured over it. It makes a most delicious pudding. It may also be mixed with avocado pear. As boys we always preferred farine to yams, cocoas, or sweet potatoes, and I believe if farine was better known it would be highly appreciated. I have been recommending it to my friends, and I shall be glad if it could be introduced in the markets on Saturdays and sold by the quart as it is sold in Grenada, Trinidad, Tobago and St. Vincent.

S. L. LINDO.

Port Antonio, 3rd Nov., 1897.

FARINE IV.

(*Journal, October, 1900.*)

As a result of the lifting of the cassava from between the vines at the Grape Farm, the Society has now a considerable quantity of well made Farine on hand.

Farine forms an economical and nutritious food. It is manufactured from Bitter Cassava, which is peeled, and grated; then the wet white pulp is put in bags and the juice pressed out of it. With the juice a *small quantity* of starchy matter escapes, which may be utilized as dry starch for laundry purposes or made into tapioca, (by heating it in the same manner as with the Farine, when the starchy particles swell and form the glutinous granules of the tapioca of commerce,) otherwise the whole nutriment of the cassava is contained in the Farine. The damp mass, like a loose, rough dough, is then placed upon a large iron pan, which in this experiment of the Society weighs a ton, and while being baked with a gradually increasing heat (but never a great heat) above a wood fire, is kept raked to and fro with long handled wooden rakes, (or common garden rakes do well,) until it falls into white or light brown granulated particles like bread crumbs, some fine, some coarse. This is spread out thinly to let any steam contained in it escape else the particles might cake together, and when dry and cool it is ready for use. Farine swells in water to at least thrice its own bulk. It is very nutritious, and it is very digestible because the baking transforms most of the starchy matter into dextrine. Just as for a dyspeptic patient the Doctor will probably order well browned toast in place of the ordinary white bread, knowing that by the toasting of the wheat flour bread, a chemical change takes place in the starch of the flour, making the bread more easy of digestion, so Farine has therefore something of the composition of the toast ordered as easy of digestion. It makes excellent Porridge, Puddings and Pap, and can be made into very good sweet cakes and dry cakes or biscuits. All through tropical South America, Cassava, or Mandioca as it is called in Brazil, Yucca in Colombia, is very largely grown, and the Farine manufactured from it is the staple farinaceous food of the great mass of the people; it, indeed, at once performs the duty fulfilled by the wheaten flour, oatmeal, cornmeal, barley and rice of other countries. Edwards in his "Travels on the Amazon" writes: "The food of all the classes doing manual labour throughout the province (Para) consists principally of fish and farinha—the latter a preparation of the Mandioca root. This plant, botanically, is the 'Jatropha Manihot,' known in the West Indies, as Cassava. The tubers are shaped much like sweet potatoes, and are a foot or more in length. They are divested of their thick rind and grated, after which the mess is placed in a slender bag six feet in length; to this a large stone is appended, and the consequent extension producing a contraction of the sides, the juice is expressed. The last operation is the drying, which is effected in large iron pans, the preparation being constantly stirred. When finished it is called farinha or flour, and is of a white or brown colour according to the care taken. In appearance it resembles dried crumbs of bread. Farinha is the substitute for bread and for vegetables in Brazil; the Indians and blacks eat vast quantities of it."

And Professor Alfred Russel Wallace, the eminent naturalist, writes in his "Travels on the Amazon": "I was quite puzzled to find out when the Indians had their meals. In the morning early they would eat some dry farinha cooked or a roasted yam; and in the evening some more farinha or plantains. I could not imagine that they really had nothing else to eat, but at last was obliged to come to the conclusion that various preparations of mandioca and water formed almost their only food. My hunter never took anything out with him but a bag of dry farinha, and after being away 14 hours in his canoe would come home and sit down in his hammock and converse as if his thoughts were far from eating, and then when farinha and water was offered him would quite contentedly drink it and be ready to start off before daybreak the next morning. Yet he was stout and jolly looking."

In the island of St. Vincent and other of the West India Islands Farine has always been much used as food, and children practically brought up upon it. In Jamaica it has not been much used; native foods are not good enough for us; we prefer to use as much as possible that which is imported, but until native products are more largely in use, we cannot truly flourish, for it is not as if Jamaica was a manufacturing country with so many people engaged in industrial concerns that but very few had time or opportunity to cultivate the soil. Practically every body depends on agriculture, yet we patronise very largely and very needlessly the agricultural products of other countries. The Agricultural Society made an attempt some years ago to popularise Farine but it was not sustained enough. It made experimental cultivations of cassava, manufactured Farine from it and put it before the public. Again the Society brings the merits of this nutritious native article of diet to the notice of the people of this island, but it cannot force the attention of the public, it can only call attention to the Farine, give the public opportunity to use it, and explain how it is made; and it has already given practical demonstrations throughout the country on the manufacture of Farine. At any rate there is no doubt as to Farine being a useful and nutritious food, and it ought to be well patronised.

J. B.

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CASSAVA FARINE—V.

(Extract from Journal, June, 1909.)

Cassava has been introduced into the famine districts of India chiefly by the efforts of the Salvation Army. It is stated that the district of Travancore has not suffered lately from famine, but formerly it was subject to famine and scarcity until cassava was introduced, and this has proved a splendid famine resister. In India the large tuberous roots are boiled, sliced and sun-dried and made into a flour, which can be either eaten alone or mixed with another flour, according to the tastes and resources of the family. Another advantage of the cassava in drought-stricken districts is that it does not need to be harvested like grain, but it can be left in the ground for months without spoiling. In this sun-dried form it can be kept for years and it can be transported to other climates. . . .

Now here we read of cassava being grown to save people from drought and famine in India, and it has already proved itself a benefactor in one district. Our experiences of drought here, bad as they have been in St. Elizabeth and South Manchester and St. John's, are as nothing compared to the droughts experienced in parts of India. Cassava is grown in many districts in Jamaica largely. It will keep in the ground and grow all the while through the worst drought, it can be kept also in the form of slices sundried, to be beaten into flour at any convenient time, or it can be made immediately into one of the finest meals amongst our farinaceous foods, in the form of farine, which is both tasty and nutritious. There is not the slightest reason whatever with such soil and climate as St. Elizabeth has, in spite of dry weather, for there to be such distress as there has been, in our experience, twice within a period of ten years. We wonder who has proved correct—the Agricultural Society in its advocacy of cassava and farine, and its efforts to make the storing of food a matter of economy, 10 years ago—or the many sneerers at these efforts when they were made. We could never understand the minds of those who so often stated that the idea of using cassava-farine as a staple food was all "foolery," "tommy-rot," and all the rest of it, while we import farinaceous foods made from wheat, oats, barley, etc., when farine is in general use throughout Central and South America, was in actual use here before any of the present generation was born, and at the time of our efforts, was being used with good results at the Girls' Reformatory at Stony Hill and in some households. When tried at the Penitentiary, the prisoners expressed the opinion that they would rather have cornmeal, yet many of these people came no doubt from the very districts where they had been partly brought up on cassava. It was really a curious state of affairs, that prisoners should have their likes so much considered. Farine was not of course then as cheap as cornmeal, simply because it had been made experimentally by the Society, but it could have been made cheaper.

In dry districts we need very little solution of the food problem; there can be plenty of food at all times. What we need to try to overcome is the custom of thriftlessness, the lack of foresight, and the habit of depending on help when we get into difficulties through any untoward circumstances, particularly drought. We are of the same opinion now as we were then, that the Agricultural Society through its propaganda, and local Agricultural Societies, heartily backed by ministers of religion and teachers in schools (as we are glad to say our efforts are well backed now), and thinking people in general, will solve the problem,—if there be any—of preventing distress through drought at any time.

Cassava is the greatest among all our food crops as a drought resister, and one that can be made still more useful in all districts subject to drought than it is if the thrifty habit of making Farine becomes general.

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COWPEAS.—In an article on cowpeas published in the *Agricultural Gazette of New South Wales* (August 1914), it is stated that in manurial trials at the Hawkesbury Agricultural College, phosphoric acid proved to be undoubtedly the most important manurial ingredient for this crop. Sulphate of potash, though it increased the yields, was too expensive; while nitrogenous manures, especially nitrate of soda and sulphate of ammonia, were decidedly detrimental.

CASSAVA AND FARINE.—VI.

(From Journal, June, 1910.)

We have helped as much as we could, in the endeavour to get a cassava industry, for making starch, developed in the Island, yet all the time we have felt that we really do not require to wait on outside capital coming in, either to establish starch factories or buy dried cassava, as we know that the price of cassava starch in the world's markets competing with potato starch, cannot warrant the price asked for cassava by many present prospective growers, viz.: 2/6 per cwt. in the field. Figuring on a 5-ton yield of roots and 25 per cent. of starch, would give say, one and one quarter ton starch at £14 per ton in London,—£17 10s. the first cost of roots say even at 40/- per ton would be £10; there is transport, manufacturing and other expenses, so that judging by all this and the experience of the two starch factories already working, starch cannot be produced at a profit if the cassava had to be bought at 2/- per cwt. in the field. Nor can such a high price as £14 per ton be depended upon.

Now we import farinaceous foods to an enormous extent,—enormous, considering our population and that we are an agricultural and food-producing country, producing foods for human consumption, and that large tracts of the Island do not produce such exportable crops as we presently make money from. Of flour we import £245,000 worth and of cornmeal, £37,000 worth, rice, £50,000, besides such horse-feeds as corn, £47,000, oats, £11,000. That is about £330,000 worth of flour, cornmeal and rice are imported here, in addition to small quantities of prepared foods put up in packets.

Now cassava is a good food, as a root, better than Irish potatoes, and possessing besides, the valuable quality of being made by a very simple process,—which anyone can do—into meal. To make flour from wheat, and meal from oats, requires elaborate processes, and even meal made from corn by hand is a laborious and tedious process. Generations of people in the West India Islands, long before wheat flour was brought here in the quantities it now is, and long before it was known at all indeed, had as their chief food cassava farine, and to this day, the Indians of Central America and South America, live on farine as their staple food, and they are usually strong and healthy people, able to do heavy, prolonged, physical labour.

Now, why should we then, with our boasted capabilities for raising cassava by thousands of tons, require to depend for our farinaceous food on shop-flour and cornmeal, and whenever a pinch of drought affects us, be obliged to live on shop stuff and get in debt over it? Why! the dry districts should be exporting farine to other parts of the Island all the time.

Now we wish to figure it out:—Five tons of cassava roots from an acre of land (which should be the minimum from a well-cultivated acre), will give about one and one-quarter tons of starch, the making of which is elaborate and prolonged and therefore expensive process. This is worth in foreign markets £14 per ton or 1½d. per pound, therefore in quantity would probably not be worth more than £10 here, if it was a large industry and the product was bought by merchants to be shipped. But five tons of cassava roots made into farine will give nearly one and three-quarter tons, the process of making which is cheap, and this product is not easily spoiled and

made unmarketable, like starch. Now cornmeal sells wholesale at £1 per 196-lb. barrel, and flour at £1 10s. per 196-lb. barrel. Cornmeal is sold retail at 1½d. per pound and flour at 2d. per pound; in the country parts dearer than these figures. From one ton of cassava roots—2,240 pounds, we get say 746 2-3 pounds of farine, and this at 1d. per pound gives us £3 2s. 2d.; five times this gives £15 10s. 10d. per acre, less cost of labour. But pound for pound weight, farine goes further than cornmeal; it swells even more than rice.

We think farine could be put in the market on a general scale at the price of 1d. per pound wholesale, to be sold retail at 1½d. to 1¾d. per pound.

Our chief object, however, is to draw the attention of those who have cassava in quantity, to the economy of farine, that they cannot find sale at once for to make it into farine. We have used it regularly in porridge, puddings, etc.,—have used it for feeding dogs and fowls, and when we can get it in quantity, even at the same price as cornmeal, will use it again.

(These prices are all of course pre war figures).—ED.

—:O:—

CASSAVA FARINE.—VII.

(*Journal, April, 1913.*)

Cassava makes an excellent meal, the palatable, digestible Farine, the staple food in large regions of South America.

Why should we import so much Cornmeal (£35,000), and flour (£255,000) and turn up our noses at Farine.

Forty bushels of corn is a large return per acre (the average now over all the United States is only 15 bushels) and it gives about 80% of cornmeal, but no by-products are wasted. Five tons of cassava is an ordinary yield here per acre in ordinary years. This gives one-third of its weight in Farine or 3,733 lbs. This at 1d. per lb. would yield £15 11s. 1d. on one acre. It could be sold at 1½d. per lb. retail. Cornmeal costs 1½d. per lb. retail in Kingston. Good cultivation of the cassava and a large yield per acre, 10 tons being no extraordinary yield, would enable Farine to be sold at 1d. per lb. retail.

—:O:—

CASSAVA FARINE.—VIII.

(*Journal, May, 1913.*)

Following up our remarks in last number *re* the making of Farine from Cassava as an economical industry, and the use of Farine as an economical and efficient food, we give the following experience:—

The cassava industry is one that interests me greatly. We have had some experience in the use of cassava foods in this institution, unfortunately not as much as we would wish, for the simple reason that the supply ran short. But for the few months that we had (1) Cassava meal and (2) Farine from Mrs. Fray's Spring Plain Factory, we were greatly pleased with both articles, and they were enjoyed in various forms by the inmates. I believe the Farine is what some foods of higher dietetic value according to analysis, do not prove to be, that is *easy of digestion*.

We use (1) Cassava meal for porridge, and dumplings, very satisfactorily; and (2) Farine as a breakfast or supper food, eaten either

softened in milk, or dry, like the patent food "Grapenuts" and "Force."

We have found that properly prepared and *sufficiently* cooked, the ~~cassava~~ products are excellent along with other ordinary foods. They make acceptable variety, and with a proper balance of meat and fats, are both palatable and nourishing.

We found the Farine the most digestible, as it is dehydrated and partially dextrinated starch, and quite suitable food for growing children as well as adults.

I earnestly hope that your project will be carried through as it deserves to be.

In time we will hope for banana meal, and Jamaica cornmeal not spasmodically—but regularly to be had.

* * * * *

I can most certainly add to my letter that all the cassava foods we have used here at intervals extending over many years, whenever procurable, including the very creditable production from your Society (and what we have been able to grow and prepare for ourselves) have proved to our entire satisfaction, their great value. I shall be very glad when it is possible to have a regular supply.

I have taught several of my friends to like the farine, and with some advertising and personal effort in making it known, there ought to be ready sale for large quantities. Many people in this district are continually asking me where it is to be had, and when I will be likely to get some more. The crisp, nutty farine, requiring no cooking, and so attractive in appearance and taste, made quite a good reputation among those to whom I gave samples. If it can be sold fairly cheaply, there is a great future before it as far as I am able to judge.

(Miss) C. NUTTALL, Belmont Industrial School.

COTTON GROWING.

The year 1914 was over a large part of Jamaica one of the very worst on record for small rainfall. If it was dry over some parishes which have ordinarily a very good to a very large rainfall—like St. Mary, Eastern St. Thomas and Portland—the condition of agriculture in what we have come to call the dry districts (when they are not termed the drought stricken districts) may be imagined—we will not attempt to describe them. Sufficient to say that little rain fell from early in the year, and at the end of 1913, the rainfall had not been profuse as it should be, so that the land was not saturated with moisture to start the drought with, but was already dry.

It was under such conditions late in 1913, that this Society started some systematic experiments in growing Sea Island and the Sakellari-des variety of Egyptian Cotton. Usually, to get the best crop of cotton one should plant from the middle of August to the middle of September, but there was not enough rain in Southern St. Elizabeth or Southern Manchester to start the growth of seed until October. The plots were grown in different ways, the original plan being to compare the resulting crops; but owing to the re-sowing that had to take place, throwing parts of the plots very late and to the fact that there were practically no results in two of the plots as rain enough never fell to help crumble the clods which no amount of pulverizing by hoe or fork

could ever have made fine. The kind of weather to bring about such conditions may be pondered over. Planting was done by chop holes made by the hoe in hard ground, in forked holes, and in parts of the plots the soil was forked all through. Part of some plots were mulched, part not mulched. Owing to the drought it was difficult to find enough dry Guinea Grass even to mulch with and recourse had to be made to the foliage of mango and other drought resisting trees. Hence the very high cost of the mulch, but this was justified as it ensured some crop through the severe dry weather when otherwise there might have been none. We present statements of accounts of two plots. No. 1 was grown in red soil, a very hot place, but when there is rain, a fast growing and productive place. The soil was new and good. We have eliminated a few items of expenditure which are rightly charged to permanent expenditure—such as stumping and fencing. Even the cost of clearing the acre might not all be charged to one crop of one season of six months.

Under the circumstances this cotton did very well. It would have shown better financial returns if a catch crop had been grown through it like No. 2.

This No. 2 was grown by the Agricultural Instructor himself, but had no close personal supervision as he has, in the course of his duties, to be away every week day and over half his time at night too.

What he can do careful small settlers in those very dry districts should also be able to do. Catch crops are a necessity for the small settler; they are an insurance that he will reap something and are a compromise between the local food crop and the export crop.

COTTON PLOT. (Instructors).

NEW FOREST COTTON PLOT, 1913-14.

1913.		£	s.	d.
Aug. 7th	For clearing on account	..	10	0
Aug. 13th	Forking and roots taken up on account	..	5	0
Aug. 20th	Clearing (bal.)	..	8	0
Sept. 5th	Forking (bal.)	..	15	0
Sept. 11th	Planting	..	6	6
Sept. 11th & 12th	Planting	..	6	6
Oct. 9th	Weeding on account	..	2	6
Oct. 22nd	Weeding (bal.)	..	2	0
Oct. 22nd	Mulch	..	1	1
Nov. 19th	Dusting with Paris Green	..	1	0
Nov. 24th	Resowing	..	1	0
Nov. 24th	Weeding	..	3	6
Dec. 10th	Dusting and Resowing	..	2	6
1914.				
Jan. 9th	Weeding	..	5	6
	Picking	..	1	0
	Bags, cartage, wharfage, freight	..	18	6
Actual cost of Cotton		..	6	8
Reaped 601 lbs.—175 nett at 1/- per lb.		..	8	15
Net Profit			£2	6

One acre—1913-14.—II.

EXPENDITURE.

			£	s.	d.
July	1913	Clearing land	..	0	16 0
Aug.	"	Drills, 9 ins. wide, 8 ins. deep, rows 4 ft.	..	1	1 0
Aug.	"	Guinea Grass Mulch, and horse manure— 1 handful to each hole	..	3	15 0
Sept.	"	Planting	..	8	0
Oct.	"	Resowing about three-fifths of the whole acre	..	5	0
Oct.	"	Weeding	..	6	0
Oct.	"	Buying of Red Beans & Planting	..	12	0
Nov.	"	Weeding	..	6	0
Dec.	"	Reaping Red Beans—cost	..	9	6
Mar.	1914	Corn Planted	..	2	0
April					
May &					
June	"	Cotton picked	..	1	2 6
July	"	Corn reaped—cost	..	7	3
July	"	Bags for cotton, cartage, freight & wharfage	1	1	0
			£10	11	3

INCOME.

			£	s.	d.
Dec.	1913	Red Beans reaped and sold—12 bus., 5 qts.	7	5	10½
July	1914	Corn reaped and sold—14 bus., 12 qts.	2	17	6
		Cotton reaped, shipped from Ginnery to Liver. pool and sold—nett	..	11	5 0
			£21	8	4½

Not more than seven-eighths of the total area of cotton planted grew, and at the time of sending away seed cotton gathered, fully 100 lbs. remained unpicked. The same acre was remulched in August, 1914, at a cost of £2 12/-. Cassava was planted in September and Red Beans and Corn in October. The return from Red Beans and Corn was 14 bushels and 6 quarts, and corn (still on cob) estimated at 10 bushels. If the return of the cassava be as 2 acres reaped at a year old last December and the rate be the same, the amount would be £23.

(Sgd.) E. J. SMITH.
8/3/15.

	Cost.	Yield.	Gain.
Red Beans	..£1 1 6	£7 5 10½	£6 4 4½
Corn ..	.. 9 3	2 17 6	2 8 3
Cotton	.. 9 0 6	11 5 0	2 4 6
Total	£10 11 3	£21 8 4½	£10 17 1½

The mulch which cost £3 15/- is charged to this one crop of cotton and not to the beans and corn, so are the weeding expenses of £1 8/-. If the costs of these were charged pro rata there would be £1 11s. 0d. to add to the profit on the cotton.

When expenses are charged *pro rata*, Statement stands:—

	Cost.	Yield.	Gain.
Red Beans	..£2 3 6	£7 5 10½	£5 2 4½
Corn	.. 18 3	2 17 6	1 19 3
Cotton	.. 7 9 6	11 5 0	3 15 6
Total	£10 11 3	£21 8 4½	£10 17 1½

Under ordinary market conditions this cotton which was of very good quality would have fetched about 1/6 per lb.

JNO. BARCLAY,
Secretary.

—:O:—

COTTON.

Undoubtedly Cotton would be an excellent addition to our staple crops, the more of which we have the better, as the fluctuations of trade in various products during the past few years have proved, especially to small planters. In all the dry districts there has been difficulty in finding suitable crops for export. Cotton is a suitable crop for the conditions of these districts and is at once a good crop for the larger planter and the small grower. Experiments have been made with various kinds of Cotton, but, so far as all our experiments have gone, Sea Island Cotton is the best yet. It has, however, its drawbacks. It is a very high class Cotton and a low grade of it is hardly saleable. It has either to be good or it is hardly worth growing at all. Small settlers as a rule do not take such care in the cultivation and picking as will produce a first class staple. Then again, as is the general rule with plants producing a high class of product, it is more delicate than other robust Cottons producing a lower grade. The common Cotton grown in the United States is Upland Cotton, but that would not pay us to grow here. The next grade of Cotton to Sea Island is Egyptian Cotton, and we have also tried experiments with it. There are different kinds of Egyptian; those tried have been stronger growers than Sea Island as a rule, and have given larger crops (but not the Sakellerides variety), but the nett results have not been any better. In some countries where comparatively large quantities of Cotton in the aggregate, come from the very small growers, it is a cheap Cotton that is grown which does not require planting every season, called in books a perennial Cotton. We tried one of these before, that was greatly boomed at the time, called Caravonica Cotton. There were two varieties of this Cotton—silk and wool. This Caravonica Cotton was bred and introduced by Dr. Thomatis, Queensland, and experiments were tried with it in almost every tropical part of the world. It was a Tree Cotton, i.e., it grew into a large bush, gave large crops, and if pruned, went on bearing from season to season and bore a class of Cotton of pretty much the same value as Egyptian, which was about one-third less in price than a

moderate Sea Island Cotton. It was claimed not to be subject to attacks of caterpillars and Leaf Blister Mite as Sea Island Cotton was, being more robust. As we have stated, there were two varieties of this Cotton—silk and wool, the silk was stated to have been bred from a Cotton of the Sea Island variety, from the borders of Peru and Brazil; the wool variety being a cross of these on Peruvian Kidney Cotton. When grown, however, under the same conditions as Sea Island Cotton, Caravonica Cotton, both silk and wool, was not much of a success here; those growers who tried it along with Sea Island, preferred the latter. At first Caravonica seemed to be immune from attacks of caterpillars and Leaf Blister Mite, but later on was proof against neither. A good many years have elapsed since we dropped Caravonica here (since 1908) and now there is again a good deal of talk about growing a perennial or ratooning variety of Cotton.

In the Grenadine Islands, which stretch between the Island of St. Vincent and Grenada, a variety of Cotton has been grown for many years successfully, called Marie Galante. It has always found a regular market in Liverpool as a medium class of Cotton worth about the same as moderate Egyptian, and the same price as Caravonica Cotton used to be quoted at. Strange to say, however, no experiments have been tried here with Marie Galante before.

Two years ago, some people from the United States interested in the manufacture of cheap goods—a mixture of wool and cotton—and for which a woolly kind of Cotton was desirable, came here after having spent some time in Cuba, and produced seed and samples of a lint of a Cotton stated to have been discovered in Cuba, where they stated they had tried experiments in growing this cotton, and for which they made very much the same claims as were made for Caravonica Cotton. They called this Cotton, Cauto Cotton, from the Cauto River and Cauto district in Cuba, and they wished to grow it here, but they reserved every right in the Cotton as their own, which was quite natural. Seed could only be got through them, and all crops raised and all seeds raised here were to belong to them, at a certain price to growers.

Any Cotton that would likely suit our purposes here should be tried, but it should be tried first experimentally on a small scale, and it did not seem to us quite a safe thing to start out and grow a Cotton new to us, largely, without experiments having first been made.; We remember the claims of Caravonica Cotton and the results. We also remember that we had considerable correspondence with people in the Eastern part of Cuba some years ago where the district of Cauto is, especially a large Norwegian Colony who were anxious to grow Cotton. We sent them seed of Caravonica, and they also got a large quantity direct from Dr. Thomatis in Queensland. This was in the years 1907 and 1908. There was at Monte Christe in Eastern Cuba, in one cultivation, 15 acres of Caravonica silk, and 50 acres of Caravonica wool Cotton. These Norwegians and others had made enquiry everywhere about a suitable perennial cotton for conditions in Cuba. There were scientific men in that Colony, and it would be presumed that if any wild indigenous Cotton had been growing at that time anywhere in the Eastern part of Cuba, they would have discovered it and tried it; but they did not mention any native Cotton in correspondence with us. Owing to conditions in Cuba afterwards, we believe that this Norwegian Colony was broken up, and the fields of Cotton were thrown up. Then a few years later a wild Cotton is

found growing in the same neighbourhood and is brought here as Cauto Cotton; when it grew and when it bore, it looked similar to Caravonica wool Cotton. We could find, however, no more Caravonica Cotton growing that could be guaranteed as such to compare with this Cauto. This does not matter much, if it is successful now, but care should be taken not to plunge too heavily in any Cotton without careful test first.

Mr. Conrad Watson has grown more Cotton than anybody else here, commercially, and has two small fields one of Cauto Cotton and one of Marie Galante, under the same conditions. When the crops are reaped and marketed we shall know which is the better for our purposes. It has always to be remembered, however, that Marie Galante has an open market in Liverpool.

The Market Report of the British Cotton Growing Association on a sample of Cauto Cotton sent them dated the 1st May *last year*, states:—

“Sample Cauto Cotton—Clean, good cotton sample, long, strong, moderately rough, suitable for mixing with wool. Value 8d. to 9d. nominal, but not very freely saleable.”

That was in pre-war times when the demand for our Cotton was good.

The Report on Marie Galante Cotton from the British Cotton Growing Association, dated January 25th this year, in war time when the demand for Cotton was almost nil, states:—

“Marie Galante Cotton sells fairly rapidly when the conditions of the market are *normal*.”

Sea Island Cotton in similar times has always a good demand if it is really a good staple.

Our Agricultural Instructor for Southern St. Elizabeth grew an acre of Cotton in the same careful way he grows crops of Tobacco and Cassava. He grew two catch crops through the Cotton, first, a quick growing crop, Red Kidney Beans, and the sale of these exactly cleared the cost of growing the Cotton: later on as the Cotton seemed likely to be a long drawn out crop owing to unfavourable weather conditions, he planted corn also, and when the Cotton was thrown up, he had corn coming along. Of course the biggest item in cultivation in these very dry parts is mulching, but this ensures a crop all through long continued drought, and of course the mulch when it rots away is manure and the soil is replenished in fertility. The cost of the Cotton cultivation alone was £4 15s. 6d., mulching cost £3 15s. the cost of the Red Beans and Corn planted, and the planting expenses and reaping of these, amounted to £2 1s. 3d. The total expenditure on the acre was £10 11s. 3d. Receipts from the Red Beans for the 12 bushels 5 quarts sold amounted to £7 5s. 10½d. The corn produced 14 bushels 12 quarts valued at £2 17s. 6d., and the Cotton after being sent to the Ginnery with expenses of freight, shipped to London and sold there at war prices, i.e., 1/- per lb, instead of 1/3 per lb. in ordinary times, fetched £11 5s. The total income from the acre was therefore £21 8s. 4½d., and the total nett profit £10 17s. 1½d. The weather was so dry that the Cotton had to be re-planted twice and even then not more than seven-eighths of the total area planted, grew. The planting was late and the Cotton had to be reaped and sent to the Ginnery while there was still a lot to be picked.

Now every careful small settler in Southern St. Elizabeth or other dry districts could do the same. But Cotton has usually been grown carelessly as corn is usually grown instead of as carefully as tobacco is usually grown. Then it will give a good crop of a good staple.

We have still hopes of a good cotton industry for some of the dry parts, when the war is over, and this Society is at any rate still carrying out a few experiments with Sea Island Cotton in Southern St. Elizabeth while the Department of Agriculture is trying Cauto Cotton in the same locality.

:O:
SPECIAL COMPETITIONS IN HANOVER.

REPORT OF JUDGE.

Great Valley,
Flint River P.O.
March 13th, 1915.

Sir,—

I enclose herewith statement of marks earned by Competitors in the Special Competitions for the parish of Hanover for the year 1914-1915, and my award of the prizes offered which are as follows:—

For the best Cottage	.. 1st. Prize	£3	
	2nd. "	2 10/-	
	3rd. "	1 10/-	£7 0 0
For Coconut Grove	.. 1st. "	£2	
	2nd. "	1 10/-	
	3rd. "	1	£4 10 0
For Small Cane Factory	.. 1st. "	£2 10/-	
	2nd. "	1 10/-	
	3rd. "	1	£5 0 0
For Yam Field	.. 1st. "	£1 10/-	
	2nd. "	1	
	3rd. "	15/-	£3 5 0
For Cocoa Grove	.. 1st. "	£1 10/-	
	2nd. "	1	
	3rd. "	15/-	£3 5 0
And a sum of 40/- to be awarded by Judge at his discretion			£2 0 0
Total to be awarded			£25 0 0

In the House Class, Competition was keen, and the first 5 on the list being so nearly even, I have bracketed the first 2 for 1st. and divide the 1st. prize between them, awarding £1 10/- to Mrs. Ann Davidson of Hopewell, Flint River P.O., and £1 10/- to Miss Ann Brown of Salt Spring, Green Island P.O. I have added the 2nd and 3rd prize money together and divided it equally between the next three on the list, awarding to Robert Cordogan of Cacoen, Riverside P.O., £1 6s. 8d.; to Benjamin Pinnock, of Cacoen, Riverside P.O., £1 6s. 8d., and to Agatha Cordogan of Cacoen, Riverside, P.O., £1 6s. 8d.

The prize winning cottages are quite above the average and are a great credit to their owners. They were all very clean and well kept and in some instances the furniture arrangement and wall decorations evinced the application of some artistic taste.

I enclose photographs of 3 of the cottages, with apologies for the lack of their pictorial value, the situations of the cottages do not lend themselves to picture-making. I enclose photo of a cottage of another description, which was not entered in the Competition, as a contrast. It is to be regretted that this kind of house is still so much in evidence, though it must be admitted that from a pictorial point of view, it takes the cake."

The Coconut Competition was fairly good, and shows considerable care and attention to the teaching of the Agricultural Society and the Travelling Instructors. I am glad to say that the distrust of the J. A. S. and its Instructors is apparently dying out, and that there seems to be constant enquiry for information, and a persistent cry for more of the Instructor's time in the various districts visited. This can only be regarded as an answer to the efforts of the J. A. S. and its Branches, and as a sign of progress. I award 1st. prize of £2 to Geo. E. Samuels of Hopewell, Flint River P.O., with 95 marks. And by adding 10/- from the Special Prizes—to the 2nd and 3rd prize money making £3. I award this to the next 3 on the list equally divided, viz: To Lindon Samuels, Flint River P.O., 85 marks £1 0 0

Charles Dunn, Green Island P.O., 85 marks 1 0 0

Joseph Spence, Green Island P.O., 85 mrks 1 0 0

The small sugar factories were on the whole fairly good, except that none of the mills are covered, and that in nearly every case the ashes was unapplied and lying waste, both these are serious defects, and not difficult to remedy, and the Travelling Instructors attention is directed to this matter.

The cane fields were all good, and some of them quite exceptional. I award to:—

Walter Hogg, Lucea P.O., 1st. prize, 94 marks £2 10/-

Lindon Samuels, Flint River P.O., 2nd. prize, 90 marks 1 10/-

Basillai Hayle or Haseley, Flint River P.O., 3rd. prize, 88 marks 1 0 0

The Yam fields were the most difficult to judge, the people are mostly all experts in this cultivation, it being one in which they are specially interested, and to which they give most of their time and attention; the difference between field and field is more apparent than real, and as the methods of cultivation change very considerably with change of locality and soil, the fields are not easily comparable. I have given full marks to the 1st prize winner, who left nothing to be desired in method, and systematic performance of the various operations and used this as a standard. The 2nd and 3rd are not far behind. Mr. Walter Hogg is specially commended for system and method in all the operations on his farm which is a model that his neighbours would do well to copy. I think that Mr. Hogg would be a great help to the Travelling Instructor if he could be induced, and it were made worth his while to help in the agricultural teaching in his neighbourhood. The awards are as follows:

Walter Hogg, Lucea P.O., 100 marks, 1st prize £1 10/-

T. A. Kerr, Lucea P.O., 98 marks, 2nd prize 1 0 0

Joseph Spence, Green Island, 96 marks, 3rd prize 15/-

The Cocoa Competition was on the whole disappointing. Considering the suitability of much of the Hanover soil for the growing of this tree, a better showing was to be expected. The marks given in this Competition are earned more for effort exhibited in improving trees, and in replanting since the hurricane of 1912, rather than for any excellence in the cultivations themselves, all of which leave very much to be desired. I award to:—

Wm. McTaggart, Lucea P.O., 1st prize, 85 marks £1 10/-

George A. Shaw, Brownville, Cascade P.O., 2nd prize, 82 marks 1 0 0

Joseph Brown, Flint River P.O., 3rd prize, 71 marks 15/-

Of the balance of £1 10/- remaining to be awarded, I recommend that grants be made to Mrs. Greaves, Riverside P.O., Mrs. Russel, Flint River P.O., and Mrs. Kerr, Lucea P.O., of 10/- each, for good housewifery.

It will of course be understood that I have no standard to which any of these Competitions are comparable, and this high marking does not mean perfection, against all comers, on the contrary each Class of Competititon has to provide its own standard, and is only relative to its component parts and not to similar Competitions in other parts of the world.

(Sgd.) ED. E. MELVILLE.

MARKS EARNED IN HOLDINGS COMPETITION IN HANOVER, 1915.

HOUSE.

Names.	Post Office.	Total.	Remarks.
Mrs. Ann Davidson ..	Flint River -	95	} To divide 1st prize, viz.: £1 10/- each
Miss Ann Brown ..	Green Island	95	
Robert Cordogan ..	Riverside -	90	} To divide 2nd prize, £2 10/- & 3rd prize £1 10/- equally, viz., £1 6s. 8d. each. —
Benj. Pinnock ..	Riverside -	90	
Agatha Cordogan ..	Riverside -	90	
T. A. Kerr ..	Lucea -	88	
Charles Isaacs ..	Ramble -	88	
Mrs. Jessy Greaves ..	Riverside -	85	
James Russell ..	Flint River -	82	
George Shaw ..	Cascade -	75	
Mrs. Ella Pearce ..	Green Island-	65	
Edward McFee ..	Flint River -	61	
Joseph England ..	Flint River -	60	
Charles Hemans ..	Cascade -	60	
Andrew Little ..	Flint River -	55	
Daniel Miller ..	Flint River -	55	
Charles Dunn ..	Green Island-	54	
Adolphus Walker ..	Green Island-	53	
John D. Whitter ..	Flint River -	51	
Joseph Spence ..	Green Island-	48	
Saml. Martin ..	Green Island-	35	
John Chambers ..	Flint River -	30	

COCONUTS.

Geo. A Samuels ..	Flint River -	95	1st prize.
Lindon Samuels ..	Flint River -	85	} 2nd prize & 3rd prize added to 10/ extra divided equally £1 each.
Charles Dunn ..	Green Island-	85	
Joseph Spence ..	Green Island-	85	
Amos Box ..	Flint River -	83	
Ann Brown ..	Green Island-	82	
Walter Hogg ..	Lucea -	70	
William Hibbert ..	Cascade -	67	
Edward McFee ..	Flint River -	56	
Ann Davidson ..	Flint River -	55	
Mrs. Ferara ..	Flint River -	55	
John D. Whitter ..	Flint River -	50	
Samuel Martin ..	Flint River -	50	

CANE FACTORY.

Walter Hogg ..	Lucea -	94	1st prize £2 10/-
Lindon Samuels ..	Flint River -	90	2nd prize £1 10/-
Barsillai Hayle ..	Flint River -	88	3rd prize £1 0 0
T. A. Kerr ..	Lucea -	87	
Jonah England ..	Flint River -	84	
Emanuel Campbell ..	Riverside -	81	
John Chambers ..	Flint River -	72	
Joseph England ..	Flint River -	60	
Andrew Little ..	Flint River -	52	Hires motive power
Joseph Brown ..	Flint River -	48	Hires motive power
Charles Dunn ..	Green Island-	18	Sells canes to factory
Peter Deens ..	Green Island-	18	Sells canes to factory

YAM FIELD.

Names.	Post Office.	Total.	Remarks.
Walter Hogg ..	Lucea -	100	1st prize £1 10/-
T. A. Kerr ..	Lucea -	98	2nd prize £1 0 0
Joseph Spence ..	Green Island	96	3rd prize 15/-
Robert Cordogan ..	Riverside -	88	
John Haughton ..	Riverside -	87	
John D. Whitter ..	Flint River -	83	
George Samuels ..	Flint River -	82	
Lindon Samuels ..	Flint River -	80	
William Hibbert ..	Cascade ..	80	
George Smithson ..	Cascade -	..	Entered rented land in error.

COCOA.

Wm. McTaggart ..	Lucea -	85	1st prize £1 10/-
George Shaw ..	Cascade -	82	2nd prize £1 0 0
Joseph Brown ..	Flint River -	71	3rd prize 15/-
James Russell ..	Flint River -	65	
Amram Malcolm ..	Riverside -	58	
Emanuel Campbell ..	Riverside -	45	
Duncan Godfrey ..	Cascade -	41	

(sgd.) E. E. MELVILLE.

STOCK NOTES.

GARGET.—This is the term used to describe the hard udder that heavy milking cows often get after calving, or sometimes, immediately before calving. The udder gets very hard and very little or no milk comes, and such as does come may be thick and cheesy. The udder must be bathed with hot water, then worked (massaged) with the fingers, using a little good embrocation or liniment at the same time; the udder is stimulated by the rubbing and the embrocation. Where this treatment fails, it is because it is done for a few seconds only instead of for 10 or 15 minutes. All the time the teats should be tried for milk by gently drawing them. This treatment should be repeated 3 times a day, because if neglected at all it may happen that one portion of the udder or sometimes the whole udder is ruined.

CALVES.—Whenever calves are born their navels should be anointed at once with a home-made ointment made of 1 part of Jeyes' Fluid and 3 parts Castor Oil. The disease called "White Sores" originates from germs which enter the navel of the calf when it is born. This antiseptic treatment prevents the entrance of these germs and attacks of the "White Fly" which hatch out into worms which eat their way into the navel of the calf. It is quite common to pour raw Jeyes on the raw place at the navel, but this causes pain and burning, and the dilution with Castor Oil is better in every way. Of course there are other antiseptic treatments, but this one is simple and within everybody's power. When we speak of "Jeyes" we mean any good disinfectant such as are advertised in this JOURNAL—Ferris' or Pattinson's or Kreso.

DEHORNING CALVES.—Anyone who prefers poll-head cattle to horned stock can very easily secure this without breeding from Black or Red Poll breeds. For instance, cows may be made Polls, and the

bulls left with horns. Buy a stick of Caustic Potash (taking care to keep it from exposure to the air and not to handle it with the fingers as it will burn them). Within 2 days of the birth of the calf clip the hair from around the horn knob which may be easily felt, wet the knob and touch it with the Caustic. This will destroy the growth of the horn.

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SALT FOR STOCK.—When we travel we always look about and enquire whether the animals kept—horses, mules, donkeys, cows, goats and sheep—get salt. We leave out pigs, fowls and rabbits which do not need salt as the larger stock do. We find that very few stock owners provide rock-salt for their stock. Some say it wastes too much if they put it in pastures. It is easy to prevent rain from dissolving the rock-salt, however, by placing it in a box under the cheapest of shelters, four posts and grass thatch. But every cattle-pen can be fitted up to hold rock-salt in a box in the corners or in the middle, and the cattle will at least get some when they are driven in. In this way the salt can be taken up and locked away when the cattle are driven out. In this way, too, the cattle soon learn to expect salt in the cattle-pen and willingly go there without much driving. If left in pastures, rock-salt is often stolen.

At one time we imported sulphur and salt bricks, but they were rather expensive though very useful. The sulphur was medicinal and being excreted through the skin to some extent, the theory was that it helped to keep off ticks. This however, was not proved on trial, but the trial was not prolonged enough to be definite one way or another. But blocks which contain salt and which will not be stolen can be easily manufactured where there is clay by making clay blocks mixed with coarse salt, and any kind of medicine available in powder from can be added—sulphur and sulphate of iron, for instance. Plenty of stock owners, however, would prefer to purchase such medicated blocks already prepared, as the proportion of iron and sulphur requires to be accurately calculated.

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TICKS.—While there is a comparatively large use of Tick Washes as advertised in the JOURNAL compared with what prevailed a few years ago, there are still, unfortunately, very many who keep stock, never tick their cattle at all, or who do so only at long intervals. Consequently the determination of one penkeeper to try and get rid of these pests from his pastures and who works steadily towards this end, spraying his cattle at regular intervals, is set at nought by his surrounding neighbours whose pastures swarm with ticks all the time, who do little or nothing at all towards getting rid of these costly pests—and how costly ticks are to this country is, unfortunately, not realized by most people.

The Southern part of the United States was tick infested some years ago, and many States are still so, but a determined effort is being made to get rid of them over that large extent of territory. We publish below part of a short article from the *Breeders' Gazette* of Chicago. The article is entitled "Cleaning the South of Cattle Ticks."

We would go so far as to say that tick eradication should be made compulsory here.

A usual method of exterminating Texas fever in cattle is by swimming all animals infested with the tick, which causes the disease, through a machine-like dipping vat filled with a solution of arsenic.

The young ticks eagerly seek a host to which to attach themselves. They cannot fly, and crawl very indifferently; however, they patiently await the approach of a cow, but if none comes for a month the little pests wait. They can live four months without the cow's blood, at the expiration of four months in summer, if no succour comes, they die of starvation. The cow so unfortunate as to run into the ticks may quickly be covered with them. They inject into the cow the small microscopic body which is the direct cause of the fever. If it is not a native cow the fever appears about the seventh to tenth day. The temperature rapidly rises, often reaches 110°; the animal at first dull and listless, becomes frantic and excitable and dies after great suffering. The native cows which we consider immune to Texas fever become thin, worried and worthless. The supposed immunity is only partial as at least 14 per cent. of all tick-infested cattle die every year.

Considering that it is a pioneer work, progress in eradicating the cattle tick has been remarkable. Just a few years ago very few people believed ticks could be stamped out. They have been entirely eradicated from more than 210,000 square miles of territory in less than eight years. The cost of cleaning up that territory is about \$1,000,000 and the value of the work to the cattle-owners by the increase in prices amounts to \$20,000,000.

More than one-fourth of the original quarantined area has been cleaned in eight years. At that rate it would take more than 250 years to stamp out the great evil from this nation. Eight years should be sufficient time to accomplish the remainder of this work. The south cannot stand still or be satisfied with the present state of progress. Now the men at work have solved most of the difficulties attending the eradication campaign. They have the dipping vats and arsenical solution which is a safe, reliable and inexpensive method of destroying the tick. With these vats located at intervals of every 4 miles in a county all the cattle may be dipped every two weeks and in four months in the summer an entire county may be cleaned; yea, an entire state—in fact, the entire area.

There is no legitimate reason why they should not attack this basal subject. The tick is a menace, a costly drain, an unjustifiable expense, a needless tax and the greatest obstacle in the way of the cattle business of the south. Every ten years its aggregate tax upon the south amounts to the total debt. The south has tolerated the tick these many years and has paid dear for its indulgence.

The people's estimate of the value of tick eradication as indicated by more than 1,000 practical cattlemen shows that the losses from Texas fever are reduced from 18.5 to 1.1 per cent. of the total number of cattle. The value of steers is increased 55 per cent. The weight of cattle is increased 19.7 per cent. The grade of cattle is much improved and crop production is increased 83 per cent by the use of cow manure.

In South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Oklahoma and Texas there are 15,038,805 cattle valued at \$286,639,623. Let us apply the rule of increased valuation as the result of eradicating the tick from those states, and we shall have increased their value to \$429,959,434, an actual increase of \$143,319,811.65. With the tick obstacle removed, there will quickly follow a rapid increased interest in cattle. The south is justified in expecting that, with the new live stock era in the south, the total number will be quickly doubled, and we shall then have 30,077,610. Without drawing a particle upon the imagination, it is confidently expected that within 20 years after the departure of the tick we shall have so far progressed in the upbuilding of our herds that they will be worth double what they are to-day. The cattle interests will then be valued at \$573,379,046.—*The Breeders' Gazette*, 11/3/15.

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POULTRY NOTES.

SELECTION.—No persons can improve their poultry whether the birds be fowls, ducks, turkeys or guinea fowls, unless they continue from year to year selecting their best for breeding purposes. Unless this is done, introducing cocks of certain breeds is futile. There is no quick short cut to steady success. The first thing to do is to keep the fowls healthy; only keep healthy fowls, keep them well fed but not over fed, with an abundance of fresh cool water. The lack of a fresh supply of water renewed at least morning and afternoon is

very often a big and cruel omission. Eggs are at least 70 per cent. water, so an abundant supply is necessary.

But the greatest power in the breeding of poultry is selection, not only of one's own birds from season to season, but selection in the introduction of fresh blood. One's first care should be healthy birds; the selection of the fittest to breed from. Then having vigour, select along the lines you aim at, good layers, fine table birds,, or the happy medium—the general utility bird.

* * * * *

That this is not done is proved by the fact that the immediate descendants of fine birds, up to standard weight, for their breed, are often poor specimens of their breeds. We have birds sent to this office for our opinion and sometimes when we are acting as medium for sale, that are only worthy of the breed they belong to in colour and name.

May we assure those interested in poultry that there is very little in a name when applied to a breed of fowls; that in almost every breed, there can be fine looking, thrifty fowls and fine layers, and on the other hand rank rotters.

Strain counts for more than breed yet of course there is something in breed—but not much.

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YOUNG TURKEYS AND FOWLS.—Everybody who keeps poultry would be having chickens hatched from January until now. Already a great deal of mortality has been reported to us, especially among young turkeys. It is usually the diet that is wrong. It is particularly hard on the digestive powers of young birds to be fed on ground corn when they are just hatched. Stale bread toasted and crumbled fine, and, as a change, soaked in milk, where milk happens to be cheap, gives the young turkeys a good start. It pays to buy coarse oatmeal from the stores and feed young birds, principally on that whether turkeys or chickens for the first week. After that the ordinary brown rice can also be used, and for two weeks more the rice (taking particular care not to get the polished white rice) can be continued as the basis. In feeding rice, particular care has to be taken not to feed too much dry rice at one time as it swells so much—better to soak in milk or parboil with a little milk and water first, especially for young turkeys. If there are no duck ants about, to put before the chicks, the ground should be dug over to supply worms for them to pick, and where this cannot be done, a good plan is to lay down a lot of broad stones, or old boards here and there, and then lift them in turn. A good many grubs and insects will always be found below. Failing all these, meat scraps from the table must be given. In some places, however, where there are broad pastures, the young turkeys may be safely run, for there they pick up plenty of insects. The mortality is usually where they have to be more confined. Over-crowding and foul ground are fruitful causes of sickness and death. Chickens should not be fed on the same place twice running and should only be fed a little at a time and always dry food up to six weeks old, except with young turkeys which may be fed on soaked bread and milk for one meal a day. To feed anything sloppy to young turkeys is generally fatal. If the hens and chicks are kept in coops these must be shifted about. Water should be always be provided and changed at least twice a day, making sure to clean out the dishes, and these should always be kept in the shade. When the chickens are a month old

then ground corn can be used freely, especially our own country corn, but it should not be used new or half cured; it is easy to make corn a better food by parching or charring it a little. The chief diseases of young chicks are, first, digestive troubles (including liver diseases) through errors in feeding. Once or twice a week a teaspoonful of Epsom Salts should be put into a pint of water, and no other water put before them so that they must drink this. A common sign of indigestion is that the chicks have a huddled up appearance and refuse to eat, while their droppings are not normal. There is nothing better than making them drink a little Epsom Salts dissolved in water, while of course the cause must be corrected by following the procedure recommended here. Another trouble is Yaws. This is chiefly caused by crowding the chickens in a coop at night amongst their own droppings or letting them sleep below hen roosts or any way in a fowl house where the air is tainted with droppings. To prevent Yaws the coop should be kept perfectly clean and should not be shut up close at night. The first thing to do is to spray the *mother hen* in disinfectant and water—she often carries the germs of infection on her. When Yaws do break out, the Epsom Salts dissolved in water should be given to the chickens repeatedly and the eruptions painted every day with Tincture of Iodine, threepence worth of which using a camel hair brush or a feather, will last a long time. A stick of caustic is useful to burn these eruptions or cauterizing with the point of an old penknife made red hot—but the treatment with Tincture of Iodine is the simplest here where servants are so often stupid or careless.

Then there is Gapes got from germs in the soil through the ground being foul. It cannot be got if the coops are shifted about and the chickens run on fresh ground. If the extent of the ground is limited then the soil can be turned over with a fork and if possible occasionally limed. Failing lime, wood ashes are useful. The symptoms of gapes are—the chickens gape their mouths continually as if trying to swallow something. To cure this trouble, take a strip of feather, one drop of kerosene or turpentine and two drops of sweet oil, dip the feather in the mixture, and, taking the loose oil off, insert the feather quickly into the chicken's windpipe, giving it a twist round rapidly, and it will generally happen that little hairlike threads, which are really worms, will come out on the feather. As the chickens get older colds sometimes trouble them, and roup is really a very distressing disease. It is comparatively easy to attend to a few chickens, but when there are a lot the best thing to do is first to give the same Epsom Salts in the water, then confine them in a room or box and burn a little sulphur, or put a red-hot iron into Stockholm Tar as to cause a smoke, or drop a few drops of Eucalyptus Oil on an old pan or tin made red hot. Care of course, must be taken that the chickens do not get too much of this. A little whiff of it at a time repeated several times is best. This will generally kill the germs that cause the cold. A good roup powder added to soft food is useful in toning up the system. If there are only a few chickens they can be treated by hand, by taking the chickens up and washing the nostrils clean with a small pinch of Permanganate of Potash to a pint of water, and touching the nostrils and roof of the mouth with a feather dipped in a little Healing or Eucalyptus Oil. These are all simple treatments and only simple remedies are given. There are other ways of treatment more elaborate but beyond the means or capacity of most of our readers. Those given we have

found very successful. To prevent infection of other chickens or fowls, it is good to put a teaspoonful of Eucalyptus Oil in the drinking water.

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DUCKS AS MOSQUITO DESTROYERS.—Ducks have proven much more effective mosquito destroyers than fishes. In the experiments reported by Dr. S. G. Dixon, of Pennsylvania, two ponds, of 1,400 square feet each, were produced by dams on one stream, and 20 Mallard ducks were placed in one, while the other was well stocked with gold fish. For several months the ducks' ponds were entirely free from mosquitoes, which continued very abundant in the young stages in the other pond. The infested pond was then opened to 10 Mallard ducks, which first destroyed the tadpoles, and then ravenously devoured the mosquitoes in preference to any other food. In 24 hours no pupae could be found, while after 48 hours only a few larvae survived.

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AGRICULTURAL COURSE AT HOPE.

A course of instruction has been arranged to be held at Hope from the 3rd to the 8th May, inclusive, principally for the benefit of the various Agricultural Instructors and all agriculturists are invited to attend, who will be able to arrange to do so. Lectures and demonstrations will be given by the Microbiologist and the Entomologist, by the Veterinary Surgeon, and the Director of Agriculture will take one day. Some of the senior Agricultural Instructors will also give lectures in the afternoons and evenings on subjects which they are specially qualified to deal with.

Those desirous of attending this course may inform the Secretary Agricultural Society, or the Director of Agriculture direct.

SYLLABUS OF COURSE TO BE HELD AT HOPE, FROM 3RD TO 8TH MAY.

Monday, May 3 :		
2—4	Lecture & Demonstration	S. F. Ashby.
Tuesday, May 4 :		
9—10.30	Lecture	H. H. Cousins.
1—3	Demonstration	Farm Supt.
Wednesday, May 5 :		
9—10.30	Lecture	A. H. Ritchie.
1—3	Demonstration	A. H. Ritchie.
Thursday, May 6 :		
9—10.30	Lecture	S. F. Ashby.
1—3	Demonstration	S. F. Ashby.
Friday, May 7 :		
9—10.30	Lecture	Dr. Rushie Grey.
1—3	Demonstration	Dr. Rushie Grey.
Saturday, May 8 :		
7—8.30	Demonstration	Dr. Rushie Grey.

Lectures will also be given by some of the Agricultural Instructors:—Mr. Cradwick on Cocoa, Mr. Wates on Coconuts, Mr. Mossman on Banana Growing, Mr. Schleifer on Long Top Coffee, and probably Mr Smith on Dry Land Agriculture.

COMMENTS.

SUBSCRIPTIONS.—Members of this Society should note that subscriptions are now due for the year beginning 1st April, 1915, and ending 31st March, 1916.

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BRANCH SOCIETIES.—Branch Societies should note that we are now in a new financial year and they should get in the subscriptions from their members as quickly as possible and send us lists of their members as soon as they can. We have sent out a circular reminding the local Secretaries of this.

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WAR FUND.—Although the Agricultural Society's War Fund closed last month we received from the Bull Head Branch this month a further donation of £1, making the total now £155 18s. 11d. As this last amount was received after the 31st March, when the financial year closed, we had already remitted the amount we had in hand to the Bank of Nova Scotia, viz., £154 18s. 11d., but we shall send in this £1 additional.

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SOY OR SOJA BEANS.—We hope that a good many of our readers will try packets of this Japanese Bean, which is richer than all other beans in fat and protein. They would be very valuable as an addition to our legumes if they could be successfully grown here.

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POTATOES.—By this word we mean what are commonly called here "Irish Potatoes." Since November last, we have imported 410 barrels of seed potatoes, and the growing of this crop has become a substantial industry, especially in the parish of Manchester. The earliest potatoes will be in by the beginning of June and the bulk of the crop by July.

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KEROSENE EMULSION.—The easiest way to make Kerosene Emulsion is to take 1 lb. of Paranaph (sold wholesale at 2d. per lb., at the Government Laboratory, and 3d. per lb. retail at various Hardware stores in Kingston) dissolved in one gallon of boiling water. Add 1 quart Kerosene Oil churning the mixture at the same time. To this add 4 gallons more of water, *i.e.*, make the whole up to full, a kerosene pan full, and use thus.

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CLAY.—The best method of breaking up clay and making it into friable loam is first, by drainage, 2nd, by heavy green dressings turned into the soil, and 3rd, lime. If all these operations are carried on together the stiffest clay can be loosened and made friable.

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GOOD PRODUCE.—We congratulate the Glengoffe Branch on having carried the following resolution unanimously:—

"We the members of the Glengoffe Branch, assembled for the transaction of business in connection with the annual meeting, hereby pledge ourselves not only to place on the market none but the best cured agricultural products, but also to influence others to adopt the same principles."

Those Agriculturists who have the enterprise to belong to the Agricultural Societies, which we regard as Mutual Improvement Societies, in Agriculture, should be examples in their neighbourhood.

GUINEA CORN.—There is a large quantity of White Guinea Corn available for planting in June and August—June in the slower growing districts and August in the quicker growing districts. This variety of Corn is very prolific but only bears in January. It is good alike for seed and for green fodder. The Red Guinea Corn is not so prolific as it has a shorter growing season—generally 4 months. It can be planted any time there is rain. Unfortunately, we have not much seed of this kind.

Cheap Guinea Corn will solve the problem of cheap poultry food as it does not need to be threshed out—the heads can be simply flung to the fowls. It can also be fed to mules, horses, and dairy cows, in the same way.

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HONEY.—Although honey is one of our best productions in Jamaica and during 1913 we exported 127,610 gallons, valued at £18,343, there is very little of it consumed locally. Honey has a pleasant flavour and the sugar in it is easily digested. It is more economical than butter, and to some extent it could replace butter in the human economy as a source of energy, especially in a warm climate. Time was when it was easily procurable here in jars, bottles, etc., but now we hardly see in at all. People who want honey and would use it, will not go hunting after it, but if it was made easily procurable it would be purchased. When prices abroad are low the local market is worth attending to.

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PIGS.—There is a shortage in pigs again. They have not been up to a normal supply since the long drought of 1907, though nearly so in 1912; then the drought in the St. Ann, St. Mary and the Eastern parishes in 1913 threw us back again. An epidemic of a disease, which was suspiciously like Swine Plague, also occurred early this year in St. Ann and Southern St. Elizabeth, which cleared off a good many pigs again. As local foodstuffs are plentiful and likely to be very plentiful, great care should be taken now not to market any shoat pigs but to keep them for breeding purposes. In addition to the "Large Blacks" at the Hope Stock Farm, we know of two breeders who have a good many half and three-quarter bred Poland Chinas to sell, of a very good stamp. The difficulty with pigs, however, is to get them about the country, where the places are not convenient to sea or railway.

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WEEVILS.—Some correspondents write us that they do not find Naphthalene successful in keeping weevils out of Corn. When we make enquiries we usually find that they have not followed the written instructions at all. A tablespoonful is the minimum quantity required for the treatment of a flour barrel full of Corn, and that is quite effective, but the same quantity would not have any effect on a large cask full—the quantity has to be calculated at the rate of a tablespoonful for from 2 to 3 bushels, and it must be placed in muslin or porous cloth; tying Naphthalene in a piece of old canvas—as one correspondent tried to do—is of no use. At the same time, for very large quantities of Corn stored in a room or in a large puncheon it would be better to use the Bi-Sulphide treatment—the Naphthalene is only for those who are storing in barrels, small bins or boxes.

ORANGE WINE.—We live in hope that some enterprising person will take up the making of Orange Wine on a large scale. We have had samples of an Orange Sherry which appears to us to be quite as good as the ordinary Sherry of commerce. It can be sold at 1/- the pint bottle. But we do not see why Orange Cider should not be made, put up in casks and sold so cheaply that it will become a popular drink.

To squeeze the juice out of the Oranges a Cider Press can be used—such presses are made to be used by hand or to be moved by power, and have a capacity of 10 to 15, and upwards, barrels of juice per day.

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SEED CORN.—There has been a large demand for Seed Corn this year and there has been much planting. It generally happens that a man is enterprising enough to want to plant the best selected Seed Corn he coincidentally gives his field better cultivation, and so we expect better and better results every year.

There have been several Corn Growing Competitions recently, and while these efforts have resulted in big crops, it is not alone the big crops secured by the prize winners that show the good that has been done. The efforts of those who won no prizes are of value, because they are, in nearly all cases, productive of much new knowledge.

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ENTOMOLOGIST.—The new Entomologist to be attached to the Department of Agriculture—Mr. A. H. Ritchie—has arrived in the Island and has taken up his duties. There is a great deal of work awaiting him. We published something on the work of an Entomologist in the last Journal (March) under the heading "Insect Pests," page 86. His particular line of work deals with insects and birds. All specimens of insect pests formerly sent to the Microbiologist should now be addressed to the Entomologist, c/o the Hon. Director of Agriculture, Kingston P.O. We gave some information on how to collect and send specimens of insects on page 88 of the last JOURNAL. Care must be taken to send biting insects in a proper box. It is very usual to send us specimens in match boxes, which insects that can bite usually gnaw through, and when we open the paper enclosing these we have sometimes had the task of chasing insects about the office. We should prefer that all specimens be sent direct to the Entomologist.

COMPETITIONS.—A Cocoa Growing Competition has been arranged in Mr. Wates' Instructural District, i.e., Eastern Portland and Eastern St. Thomas. The Parent Society is not providing any funds for this as it is entirely a matter of local effort which is very praiseworthy.

The Cottage Holdings Competition held in Portland so successfully last year, will be repeated there this year. His Excellency the Governor, who is Chairman of the Parent Society, has given £5 to provide the prizes for this Competition.

It is not likely that any of the Society's regular Competitions will be held this year. The usual Prize Holdings Competition should have been held in Westmoreland, St. Andrew, St. Elizabeth and Clarendon, but as the Government has had to cut £500 off the Society's grant, owing to the necessity for economizing all round, amounts

to the total of this sum have to be taken off our estimates. Two of the items stuck off are the amounts for the Prize Holdings Competitions and Shows.

We are greatly interested in these Prize Holdings Competitions, and while they have been held under the most difficult circumstances, sometimes, they have still been very successful, and the competitions in the various parishes have done a great deal of lasting good.

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WAR GIFTS.—Most of the last consignment of War Gifts were intended for the North Sea Fleet, and we have now acknowledgments of the receipt of 400 cases of fruit (Grapefruit and Oranges) and 5 cases of Preserves. These have been very much appreciated. The Secretary of the Vegetable Products Committee of London, who takes charge of forwarding consignments of fruits and vegetables to the North Sea Fleet, writes us as follows:—

“The Fleet has now been at sea for nearly eight months, during which time the Admiralty has not included any fresh fruit and vegetables in the regular rations served out to the men. During this time, the Vegetable Products Committee and its various branches have supplied the Fleet with about 700 tons of fresh fruit and vegetables, and the effect of these upon the mens’ health is testified not only by a multitude of letters from the men themselves, but more strikingly in the letter received from the Medical Director General of the Royal Navy.”

We hope to send another consignment of Guava Jelly and Grape Fruit Marmalade shortly, and we shall be glad to supply 10lb. tins to anyone who will undertake to fill them. Rail free. Also we hope to send some mid-year oranges, and we are anxious to know what districts have these now or are likely to have them soon.

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BRANCH NOTES.

CEDAR VALLEY (St. Catherine.)—The regular monthly meeting was held on the 23rd February. There was quite an unusually good turn out of the members and no less than seven visitors, two of whom became members afterwards. The Instructor who is apparently never weary to exhort the members to plant quick growing crops again, did so. He pointed out the possibility of Annatto bearing a high price for a long time. The Secretary spoke asking the members to co-operate in infusing life in the Society. A few minor matters were dealt with. J. A. CLARKE, Secretary.

FAR ENOUGH (Clarendon.)—A meeting was held at the Good Hope School Room on Wednesday, 24th February, 1915. There were present: Mr. T. A. Schliefer (Agricultural Instructor,) the Secretary, the Vice-President, 12 members, and a visitor, Mr. John Horn. The Vice-President occupied the chair. The sum of twenty-one shillings was voted as a donation from this Branch to the “War Fund.” It was agreed to, that meetings be held every 4th Wednesday of each month. The Instructor reported that he had inspected the Barbeques of Messrs. James and McLean, who were competing for the Barbeque Competition, and that both barbeques were satisfactorily built. The Instructor informed the meeting that it is his intention to have an April Show in 1916, and that each Branch Society is to send some description of April Products to that Show, and that this Branch must endeavour to make a better display than the other districts. A circular was read from Mr. Barclay *re* “Authorized Persons,” and replied to saying there are no authorized persons in connection with this Branch, for Praedial Larceny is on the decrease in this district. Read Circular from Mr. Barclay *re* Mouth Disease of Horsekind; years ago that Disease was in Upper Clarendon, but at present we are quite free from it. A letter was read from the Assistant Secretary Brandon Hill Branch, requesting the co-operation of this Branch, to petition the Legislative Council through our Representative, to have a Law enacted, for the fencing of all lands adjoining Main and Parochial Roads throughout the Island by the Government; it was thought to be a good idea, but that at present, the Government was not in a position financially

to carry it out. The Instructor then addressed the meeting on the Panama Banana Disease, and gave some useful instructions as to what should be done as soon as any sickness appeared in this district in the Banana plants. After a few questions from members to the Instructor, the meeting then adjourned. The Instructor shortly after proceeded to the Coffee and Cocoa Cultivation of Mr. Samuel Richards, and gave a practical demonstration of Coffee and Cocoa pruning, which held the attention and interest of many of the members, and other spectators, both from the valuable instruction and advice given by Mr. Schliefer, but also from the dexterity with which he handled the pruning knife on useless branches. J. L. ROBERTSON, Secretary.

MAY PEN (Clarendon).—The monthly meeting was held on Wednesday, 24th February. There were present: Mr. Storkes De Roux, president; 25 members, the Treasurer and the Secretary. The Secretary stated that Mr. S. A. Schliefer, (Agricultural Instructor.) expressed his regret at not being able to be present as he was on leave. A letter from the Secretary of the Parent Society was also read intimating that Mr. Schliefer would be on leave of absence until the 1st April, to allow him to fully recuperate from the effect of his recent illness. As arising out of the minutes, Mr. E. J. Lewis asked whether the "authorized persons" had made reports, as determined by the Society. The Secretary explained that the list of "authorized persons" was sent to the Secretary of the Parent Society and he had not yet been informed of the approval of these appointments, hence he did not send round circulars to the men informing them to present their reports. Mr. Thomas Green, however, who was present at the last meeting, presented his monthly report which was read. Mr. Green reported that while there were many cases of praedial larceny in his district, before his appointment, that offence is now very rare, as the appointment seems to have a very beneficial deterrent effect. He also asked if it were possible for "authorized persons" to be supplied with a copy of the Sub-Officers' Guide Book, also if "authorized persons" could act as valuers in case of damage inflicted by stock trespassing. Mr. A. H. DeLeon explained the duty of "authorized persons," and it was pointed out that an "authorized person" could assess damage done by stock just as any other responsible person. Mr. DeLeon promised to give Mr. Green a copy of the Sub-Officers' Guide, but it was explained that these books could not be supplied by the Society. The "authorized persons" who required a copy could purchase same for themselves. The report of the Instructor on the corn growing competition was read. It was decided that the awarding of the prizes be held over till the next meeting when the Instructor may be present, and that in the meantime, those who promised donations towards the prize fund, be asked to hand in same. Mr. T. B. Thompson was deputed to get in the amounts promised by the gentlemen on the Parochial Board. The President spoke on the good effect of the competition and emphasized the necessity for improved methods of cultivation and careful seed selection. If these be carefully attended to, there would be no need for the importation of corn into a country like this. Mr. Ralph Conrad advised the members to learn to use bisulphide of carbon for the preservation of their corn from the attack of weevils. Mr. Rennalls reminded the members of the difficulty there was last year of procuring good seed corn, and advised that they select choice ears and store them up, that they may have select seeds for next season. Mr. A. B. Francis stated that the guinea corn crop at Portland and other districts of Vere has been a record one, and has been the salvation of the people after their experience of the effect of the drought. He also stated that in his district there were able-bodied men who still preyed on the cultivation of others. C. L. A. RENNALLS, Secretary.

KELL:TS (Clarendon).—A meeting was held on Friday, 26th February, 1915, Present, the Instructor, six members and the Secretary. The Instructor stated that he had started the judging but was not through. Correspondence was read and discussed. The names of Authorized Persons were taken down to be sent to the Parent Society. The Instructor spoke about the Corn Growing Competition. He started the judging. It was very encouraging as the results showed in some cases over 50 bushels, and in one instance as much as 92 bushels to the acre. He impressed on the members to plant Guinea Corn. Mr. Pinto spoke on co-operation among members. This subject will be discussed at next meeting, when we hope to have a better attendance J. J. SMELLIE, Secretary.

BROWN'S TOWN (St. Anns).—A meeting was held in the Baptist School room on Friday, February 26. There were present: E. Arnett, Esq., (Instructor); L. M. Atherton, Esq., Vice-President (presiding), the Secretary and fourteen other members, as well as a few visitors. Read letter from the Secretary of the Parent Society re War Fund. The Secretary said that he had handed to J. H. Levy, Esq., the sum of £1 towards the War Fund. Read letter re War Gifts. Mr. Arnett

said that Mr. Barclay had since received 233 letters from the Hospitals thanking him for the gifts of oranges. Read letter *re* Half-Yearly General Meetings to the effect that it is advisable to send a delegate to the General Meetings. It was agreed to nominate J. C. Riley and A. A. T. Brown, (both members of the Society) to be Authorized Persons for the Districts of Standfast and Benon-Wilberforce respectively.

Mr. Arnett said that on account of the war, the Board of Management decided that the judging of the Prize Holdings Competition, which should have come off in St. Ann in May next, be suspended for the year. If, however, the money could be found at any time, the judging would come off during the present year. He said further, that the suspension of the judging would not greatly inconvenience the competitors, as the drought last year had affected the crops severely. He also said he had arranged to have a talk on Co-operation, but as other matters of importance took up so much time he would defer the same until the meeting in April. He was asked by the Board of Management to get up a scheme of co-operation amongst the cultivators in these parts of the Island, whereby a place could be secured for the start, in curing of coffee and other crops, and thus securing a market for the produce of the small settlers. He promised to speak on this at a special meeting in April. The Instructor gave a very interesting and useful talk on the growing and curing of coffee. The cultivators knew only the old-fashioned way of planting coffee, at this meeting they learnt that coffee can be planted in simpler ways and bring better results. Some of the members thought that something useful should be purchased for the use of the members of the Branch, and it was agreed that the Secretary should find out from the Parent Society how much it would cost to procure a ram of the Angora breed. The meeting then adjourned to the 23rd April next, which will be also the Annual General Meeting. T. A. BRAMWELL, Secretary.

BETHEL TOWN (Westmoreland).—A meeting was held on the 27th February, Eighteen members, Mr. J. Briscoe (Instructor), the Secretary and a few visitors were present. During the discussion as regards decision at last meeting for the sale of the Boar it was however found out that several members have promised to secure his service, so with this promise of support, it was decided to cancel the sale. Correspondence was read from the Parent Society relating to the special "Prize Holding Competition" for the parish during the present year, but it was agreed that it is better to keep to the old form of competing, and the Secretary was instructed to inform the Parent Society of this decision. The debate on corn brought out some points:—Kind of soils, preparation of same, selecting of cobs and grains from the middle cob, and the cost to produce one acre was averaged at £3 18s. 0d. The speaker then put down the yield per acre at 60 bushels, which was much below what he expected, as the last competition of the Branch gave results from 65 to 102 per acre. Allowing, he continued, that the price went down to 3/ per bushel, still there would be a clear profit of £5 2s. 0d. per acre. Hence he claimed that under proper cultivation, corn should bring a reasonable profit in Jamaica. The votes were then taken and it was decided in favour of the affirmative: That corn can be cultivated in Jamaica to yield a reasonable profit. The Instructor informed the meeting that on the 24th prox. at 3 p.m., a lecture on plant disease (banana chiefly) will be given in the Cambridge Court House by the Microbiologist, and asked that as many members as possible should endeavour to attend. L. G. BALDIE, Secretary.

TROJA (St. Mary).—The regular monthly meeting was held on Thursday evening, 27th February. Members present: The President, the Secretary, the Treasurer, and twelve other members, the Instructor and two visitors. The President invited discussion on 'Experimental Plot,' remarking that he felt certain the new teacher would ratify the concession of a square chain of land given by his predecessor. Mr. Thompson (the teacher) readily signified his willingness to do all he could to further the interests of the Branch subject to the approval of his Manager. Mr. Gardner said that in his opinion there was not sufficient land available for the purpose on the school premises as he didn't think it would be fair to ask the teacher to cut down what little cultivation there was on the land to oblige the Branch. The justice of this was readily seen and both Messrs. Mignott and McNeil offered to put a square chain of land at the disposal of the Society. Mr. McNeil's plot being already fenced and in close proximity to his stables, his offer was accepted. Mr. Mossman said that this was especially an opportune time to start the experimental plot as in view of certain changes he contemplated making in his itinerary, he would be able to render the Branch material help in laying out the plot, etc. He explained that the changes he intended making were due to his conviction that he would be able to render much more assistance to the different branches if he could devote more time to each so that he was seriously considering the advisability of dividing his parish into sections and residing for at least a month at a time in each section, and he hoped that if he

succeeded in his aim the members of the various Branches would show their appreciation of his efforts by utilizing his services to the fullest extent, as he would from the first day of his residence in any district hold himself in readiness to go anywhere and render all the help he could. His remarks were warmly seconded by the President who in very forcible terms called the attention of the members to the deplorable condition of many of their holdings and instanced the scarcity of bananas at this season—with prices likely to rise—which scarcity he declared was in a great measure due to slip shod methods of cultivation. Read letter from General Secretary asking for a list of authorized persons attached to the Branch. The Secretary was instructed to supply Mr. Barclay with the information required. Apropos of this item, Mr. Hudson (an authorized person) complained that the legal distinctions between praedial and common larceny was a source of trouble and confusion to them. Mr. Mossman said that much of the trouble experienced by the authorized person was due to the fact that instead of taking their arrests to the nearest Magistrate, they generally went to the Police which was in direct opposition to their written instructions. He assured Mr. Hudson that the difficulty complained of by him and others was now having the consideration of the Attorney General. On the initiative of the President, a resolution was passed instructing the Secretary to circularize the authorized persons attached to the Branch calling their attention to the penalties attached to the offence of not reporting their doings to the Branch. Mr. Mossman redeemed his promise to repeat his lecture on the causes and progress of the present war, and in his usual clear and lucid style kept the meeting intensely interested for half an hour, after which a Committee to look after the experimental plot was formed and the singing of the National Anthem brought a very instructive and interesting meeting to a close.

R. A. CRUIKSHANK, Secretary.

AEOLUS VALLEY (St. Thomas.)—A meeting was held on March 1st. (Monday) 1915, in the Government School Room at 5 p.m. Present: 11 members and the 1st Vice Chairman, who presided. Correspondence from Secretary of Parent Society and others were read. The business of the meeting is to consider the advisability of sending a representative to a meeting of the Lower St. David's Branch to be held the 6th March next, to confer jointly, about each Branch's share of surplus money from the Show in 1911. Whether the money is to be shared or lodged in the Bank, jointly, for future Shows, or for any emergencies which may arise. Mr. R. Barnett was elected to be the representative. The Secretary was instructed to write the Chairman of the Show Committee for that year, 1911. And that he be present at that meeting along with Mr. Barnett.

R. A. JONES, Secretary.

WHITEHOUSE (Westmoreland.)—The annual meeting came off on Tuesday, the 2nd March, 1915, in Kings School. Twelve members, Mr. Daniel Scott, who was elected a member and paid his subscription for the year, and several visitors attended. Mr. McLeod and others exhibited specimens of homemade rattraps, and showed how they were to be set. The Prize Competition for the parish: In the absence of the Instructor, it was decided to get the Secretary to write the Parent Society for details as to the size and kind of cultivation to be competed for. The Secretary gave in his report of the Branch for 1914. The report showed the death of one member, the falling off of twelve through want of interest in agricultural matters; the success of the Penny Bank; and the lectures given by the Instructor. The Treasurer's report showed a balance of nine shillings and six pence in hand after meeting expenses and contributing two pounds to the War Fund. The President next gave an interesting retiring address and urged members to do their best to keep the Society alive and strong. The election of officers followed. Mr. Ewers moved that all the officers be re-elected. This was unanimously agreed to. The officers accepted re-election and thanked the members for the confidence reposed in them. An extract on "Ticks" and their eradication", was read by the Secretary.

M. HEWITT, Secretary.

BELFIELD (St. Mary.)—The usual monthly meeting was held on the 3rd March. There was a very large turn out of members. Present were: Revv. H. W. Mitchell (in the chair), 8 other members, and the Acting Secretary. Letters from Sir John Ingle and the Hon. R. P. Simmonds were read, intimating their willingness to use their influence in getting the Government to complete the deviation of the Hardy Hill. Letters from the Colonial Secretary and Director of Public Works were also read, expressing the inability of the Government to proceed with the work owing to lack of funds. The efforts of the elected members at the instance of the Hons. H. T. Ronaldson and H. A. L. Simpson to bring about a change in the system of land valuation for taxation purposes was brought up. Mr. C. A. Monaghan stated

that the statements made by the Valuation Commissioner and the Attorney General were incorrect. Speaking for himself, he said he owned a half acre of land he bought for £5 on which his residence was situated. Prior to 1912 he was assessed at £105. In that year, he did some slight improvements to the house, and was assessed at £170. Mr. Vernon said he was greatly surprised at the misleading statements of those two officials. He (Mr. Vernon) bought an acre of land on which there was an uninhabited hut. He was assessed at £40 and to get the assessment reduced, to £20, the value of the land, he had to push down the hut. The President also spoke stating that he really could not understand the Attorney General and the Valuation Commissioner. He knew of a case where the assessment had been increased by over £200, because a decent cottage was erected on the holding. Several other members spoke of the injustice of the present system, whereby the poor man was compelled to contribute more (proportionately) than the rich. It was moved: "That the Belfield Branch heartily approves of the efforts of the Hons. H. T. Ronaldson, H. A. L. Simpson and other elected members of the Legislative Council in their endeavour to bring about a fair and equitable system of land valuation for taxation purposes. The Branch cannot help expressing its surprise at the statements made by the Attorney General and the Valuation Commissioner (vide *Gleaner* of March 22nd) and hereby refutes the statements that in the country parishes, the value of the houses are not taken into account in valuing lands for taxation purposes." This resolution was unanimously agreed to. Mr. Vernon expressed his regret that their esteemed Instructor was not able to be with them. Mr. Cradwick, he said, had had quite a run of misfortune. Mrs. Cradwick had been ill, seriously, for a long time now, and Mr. Cradwick himself had had several attacks of illness. He moved: "That the Belfield Branch extends to Mr. Cradwick, Agricultural Instructor, its sincere sympathy with him in his recent troubles, during the serious illness through which Mrs. Cradwick has passed, and is still passing. This Branch is aware of the unabated interest and untiring zeal Mr. Cradwick has always evinced in the agricultural interests of the island as a whole, but more particularly of the peasant proprietors, and take this opportunity of recording in the minutes its high appreciation of these particularly marked characteristics of Mr. Cradwick's life and work. This Branch is fully convinced that Mr. Cradwick's absence from some of the meetings of branch societies is by no means due to lack of interest, but to the fact that a good portion of his time has been taken up with matters connected with the Toronto Exhibition, and this coupled with the serious illness of Mrs. Cradwick, and his own frequent indisposition." Mr. C. A. Monaghan seconded. The President, in supporting the resolution, spoke in glowing terms of the usefulness and kind heartedness of Mr. Cradwick. The resolution was unanimously carried. Letters from the Secretary of the Parent Society *re* branch notes, authorized persons, and the proposed lecture of Mr. Ashby, (Government Microbiologist) at Richmond on the 10th inst., were read. Mr. F. Moore moved: "That provisions be made by this branch for the regular sending to the half-yearly meeting of the Parent Society a representative." This was agreed to. Mr. Morris spoke about children under 14 years selling pods. The law on the subject was pointed out, also the fact that the enemy of the cocoa pod was not so much the juvenile population, as the idle bulky men who were able to remove large quantities at a time. The next meeting was fixed for Wednesday, 7th April. H. G. VERNON, Acting Secretary.

MT. INDUSTRY (St. Catherine).—A meeting was held on the 4th of March, 1915. There being over fifty persons present, among whom were Messrs. F. Levy, who presided and A. P. Hanson, (Agricultural Instructor.) A letter from the Parent Society informing the branch of the proposed visit of Mr. Ashby to Linstead to lecture on banana disease was read. The Secretary was instructed to write Mr. Barclay suggesting a visit of the Microbiologist to Glengoffe, this being a good centre for the Societies at Glengoffe, Mount Industry, Above Rocks, Mount Charles and Brainerd. The Instructor spoke about the soil best suited for the growth of the banana and how to plant it; also what uses cassava could be put to. A very interesting discussion took place after the lecture and a vote of thanks was accorded the Instructor for his useful talk. Mr. Howell of the Glengoffe Branch gave a helpful address on the pruning of cocoa. His address was very much appreciated by the meeting which voted him its cordial thanks. The date of meeting was changed from the first Thursday to the third Friday in the month. The members present promised to subscribe so as to purchase some seeds from the Parent Society.

R. SIMEON ANGLIN, Secretary.

RICHMOND (St. Mary).—A meeting was held on Friday, the 4th March, 1915. There were present: Nine members, Messrs. E. Gunter and C. Watts, (Assistant Instructors.) The Produce Protection Law was discussed. Several members spoke

about the manner in which the unripe pods of cocoa are being sold, and the continued sale by children under the age limit; also, that the buyers are not making the required entry. Mr. W. Thomassaid, that he noticed in his field, some pods of cocoa wrung by the stem, with a view to getting them ripe in a few days. This is near to an adjoining neighbour. Mr. Watts said, that at the Half-Yearly meeting the same was discussed, and it is likely that the buying of produce will be done only by the establishment of central factories. Mr. Gunter gave a stirring address on the same, showing the benefits to be derived therefrom. The Secretary next moved that a grindstone be bought out of the funds in hand, but was not agreed to. The buying of tar was thought to be more requisite, and it was agreed that a 25 gallon barrel of tar be bought. Mr. Gunter said that 25 gallons of coal tar would be delivered at the railway for 19/-. *Re* the Prize Holding Competition, Mr. E. Gunter spoke very earnestly about this, reminding the competitors of what was required. The members thanked Mr. Gunter for his remarks. C. CREGG, Secretary.

MAHOE HILL (St. Mary.)—A meeting was held at the Schoolroom, Broad-gate, on Thursday, 4th March, at 6 p.m. Present were: Rev. T. Lawrence, President. The Secretary and five others. A letter from the Parent Society, stating the proposed removal of the difference between praedial larceny and common larceny, was read. The Secretary explained the matter, if a man stole pod-cocoa from the trees he is charged with praedial larceny, but if he steals the dry cocoa, then he commits common larceny. So they wish to remove this, so as to give the Authorized persons freedom to act in either case. Attention was called to the rule requiring that Authorized Persons make monthly reports of their work, to the Branch at its meeting. These persons will be so informed. Post Office: The President asked about the P.O. as the delegate was requested to bring the matter to the notice of the Governor at the Half-Yearly Meeting. The delegate said that Mr. Barclay had ruled that it was not a proper subject for the Half-Yearly Meeting. The Secretary on his return wrote the Governor, who replied saying, that owing to the financial condition of the island he regrets he could not order the opening of the office. Thus the matter ends. Resignation: Mr. J. Dillon gave verbal notice of his intention to resign as a member of the Branch. He explained his reason, and said Mr. Mosman, who came in Mr. Cradwick's place last year, told the members all about the Prize Holding Competition, and that $\frac{1}{2}$ acre holdings would be eligible. but Mr. Cradwick had rejected his application, hence he was dissatisfied. The Secretary said Mr. Cradwick is the Senior Instructor, and therefore must have more knowledge about the prize-holding. Again the rules are to be found in the JOURNALS. Mr. Cradwick is very much interested in the small holding and would not refuse any eligible application. The President gave similar instruction, and asked Mr. Dillon to reconsider his decision. Mr. Dillon said another point was the refusal of the members at Mahoe Hill to attend meetings at Broadgate. It was pointed out that Mr. Cradwick on his very first visit refused to attend meetings at Mahoe Hill until improvement on the road was made. An arrangement was made to the effect that on his next visit, the meeting was to be held at 4 p.m. at Broadgate, and on the following Friday, he was to visit the district of Mahoe Hill for demonstration. This arrangement was not carried out thoroughly, but so as to encourage the increase of the membership of the Branch a resolution was passed last year, that the monthly meetings be held alternately at Mahoe Hill and Broadgate. So that if members said Mr. Cradwick arranged the meetings at Broadgate for his convenience, it would be true. Those members who voted for the change are responsible. Both the President and Secretary could not see the cause of objection in the matter. Unity: The President urged the members to try to unite for the welfare of the district. W. A. SIBBLES, Secretary.

MOCHO AND BRIXTON HILL (Clarendon.)—A very enthusiastic meeting of this Branch was held in the Mocho Schoolroom on Friday, 5th March, 1915. Present: T. Wint, Esq., (V.P.), who presided, and thirteen other members, including the Secretary. It was agreed that in future, meetings be held in the Mocho Schoolroom, commencing at 3 o'clock p.m., and not as usual alternately with Brixton Hill. The Secretary was instructed to write at once to all members who are in arrears to attend next meeting, and to pay their subscriptions, as that will be the first meeting of another financial year. The Secretary was directed to give (at next meeting) an account of all matters connected with Grindstones, etc. At next meeting rules *re* forks, and the management of same, will be laid before the meeting, and the said forks must be brought in early. Further, that all rules governing the Society be read at next meeting. It was agreed that the Secretary be given compensation for his (highly appreciated) services rendered this Society for four years just closing. It was agreed that an assistant Secretary be appointed at next meeting. The report of Authorized persons was deferred to next meeting. S. AUG. FRANCIS, Secretary

BLOXBURGH (St. Andrew.)—The last regular meeting of this Branch was held 1st March, 1915. The President, the Secretary and 14 members were present, and one visitor, Mr. Vickridge, President of the Dallas Society. The Secretary read letters from the Secretary of the Parent Society *re* the suggestion to get some plants from the Hope Farm, which was made sometime ago, when our Instructor, Mr. Hanson, was present; the season being quite favourable, we sincerely ask that we be given some grapefruit plants, sweet potato slips, some cane tops, cassava sticks and cedar seedlings as early as possible, was agreed to. Members complain that the barrels of potatoes were not full for the price paid, and remarks like these have caused some of the members to hold back from further purchasing. I made it very plain to them according to your explanation to me, but they say they would prefer the barrels unexamined as they arrive. The Secretary was asked by the Authorized Persons to enquire if they are allowed to value damages done to cultivated fields when destroyed by live stock.

S. ROBINSON, Secretary.

DUANVALE (Trelawny.)—A special meeting was held on the 5th March, 1915. Among the many members and visitors present were: Messrs. J. Barclay, E. Arnett, M. Rennie, V.P's., P. James, and J. Anson, E. I. Hawkes, M. P. B., and L. N. Welsh, the Secretary. The Secretary extended a hearty welcome to all, and voiced the sentiments of all the members at the extreme pleasure in being favoured with the visit of Mr. Arnett and his Assistant, Mr. Rennie, but more especially so with the visit of Mr. Barclay, for whose benefit the meeting had been specially called. After a few more preliminary remarks, he called upon Mr. E. I. Hawkes to preside, who in a short speech referred to the dignity of being an agriculturist. The Chairman next called upon Mr. Barclay to address the meeting. Mr. Barclay rose amidst cheers; and in a very lengthy, but very interesting, instructive, and profitable address, he spoke on, *inter alia*, the workings of the agricultural system governing the Instructors, the importance and power of Branch Societies, Authorized Persons and Larceny, and Co-operation between Societies and Instructors. A hearty vote of thanks was accorded to Mr. Barclay for his very fine address. Mr. Arnett, in responding to the call addressed the meeting and spoke on the hopefulness of the Branch *re* an increase of life and activity, especially after having had Mr. Barclay's visit, the procuring of an Instructor, and the co-operation, receptiveness and willingness on the part of the members to be benefitted by the Instructor's help. He also spoke of the very large store of knowledge possessed by Mr. Barclay on poultry. Mr. Rennie, too, he said, who very likely will be located in these parts, possessed much knowledge on small stock. At his request, the members agreed to hold their annual meeting on the last Monday in April, at which he hoped to be present. Although the Chairman did not call on Mr. Rennie for a speech, seeing that he was not officially on as yet, yet he rose and in a short speech, said that if it be his privilege to be sent to these parts, he would try to do his best, and they were to do their best likewise.

L. U. WELSH, Secretary.

EAST PORTLAND (Portland.)—The regular monthly meeting was held in the Schoolroom, March 6th, 1915. There were 13 members present. Goat Pen: A pen was erected by sticks and bamboos, which cost over one pound. The goat having fallen off condition through confined in pen, many members gave their own opinions to let free the animal for some time to run on the open common. Mr. McLean said confinement does no harm. Providing fresh feeding is given, allowing this goat to run about will mean a free giving away of the breed. It is decided to let free the goat for two months under Mr. E. A. Sherwood's responsibility. The meeting was then brought to a close.

E. R. WALLACE, Secretary.

RED HILLS (Clarendon.)—A meeting was held on Tuesday, March 9th, at 5 o'clock. There were present 16 members, the Agricultural Instructor, Mr. S. A. Schliefer and 4 visitors. The business of the meeting was brought forward by the Secretary, explaining conditional terms which prove some weakness in some matters. Notice was given that members are to be re-appointed for the coming year. It was again decided that all members must pay in their subscription at the first meeting in April, 1915. Mr. S. A. Schliefer gave a lecture, showing what plans should be made for the coming year; and that the best was that some money could be spent was to buy a *Probang* for the use of choked cattle. Mr. A. L. Smith spoke showing his appreciation towards the Society show that the best acts of a Society is unity, hoping that with such qualities, our Society will be strong. Meeting adjourned till April 6th.

A. E. MILLS, Secretary.

BROWN'S HALL (St. Catherine.)—A meeting was held in the Schoolroom on Wednesday, the 10th March. There were present, the Rev. G. L. Young, President;

Messrs. Geo. Thomas, V.P., H. L. Mossman, (Agricultural Instructor,) five members, two visitors and the Secretary. A circular letter from the Parent Society *re* the Authorized Persons was read and discussed. Arising out of the discussion, the following resolution was agreed to: "That the Authorized Persons in connection with this Branch of the Jamaica Agricultural Society, be instructed that it is imperative to attend the monthly meetings of the Society; that at these meetings a report of their work either in writing or verbally, be presented, and that any certificates they have are to be presented for signature; that if they fail to attend two consecutive meetings of the Society without legitimate excuse, they will be reported to the Parent Society." At this stage the Instructor addressed the meeting. He dealt with diseases attacking yam plants and referred to investigations that had been made by which he was able to state, that a solution of lime water and jeyes' fluid would prove effective in destroying the worms, and advised the members to soak their yam heads in this solution before planting. He observed that the cane cultivations in the district were not well looked after, judging from the crops that were being reaped. He emphasized the necessity of proper tillage and the careful selection of good tops. He dealt with the diseases of the Cocoa plant, and showed how these must be attacked and destroyed. This subject he promised to continue on his next visit. He advised that attention be given to the cultivation of Annatto as this article from its use could usually find a market with very profitable returns. He encouraged the members to continue to give attention to the coffee crop though the prospects were not at present hopeful. At the conclusion of this address, Mr. Geo. Thomas supported the Instructor in his valuable suggestions, and encouraged the members to follow his advice, and not to think they knew all that can be known about agriculture. The President then thanked the Instructor on behalf of the Society for his useful lecture, and the meeting adjourned. J. M. COUSINS, Secretary.

UPPER METCALFE (St. Mary.)—The monthly meeting was held on the 12th March in the Brainerd School Room. Twelve members were present. Rev. Mr. Hastings presided. It was agreed to return to the old custom of holding the monthly meetings on the 1st Friday, instead of 2nd Friday, as at present. Letter from Mr. Barclay *re* Authorized Persons was read and discussed. It was eventually decided to recommend that the names Timothy Bonner and Joseph Duncan be dropped from the list of Authorized Persons in connection with this Society. Stealing of cocoa pods from small settlers and the purchasing of green cocoa pods by local buyers came up for discussion. The Chairman allayed all fears by intimating that the Legislators had the matter under consideration. It was moved and agreed to :—"That the sympathy of this Society be conveyed to Mr. Cradwick, Agricultural Instructor, whose wife has been having a painful and trying illness." The Secretary was asked to enquire of Mr. Barclay for seed corn, with a view to secure a bushel for planting. W. T. EDWARDS, Secretary

GIBRALTAR (St. Ann's.)—The monthly meeting was held on the 25th March. 14 members were present. The (Assistant Instructor) Mr. M. Rennie, was also present. Mr. Campbell occupied the Chair. A letter from the President, Rev. Joseph Thrift, resigning his office, was read. The resignation was accepted. Matters arising out of the minutes were dealt with, but as the gathering was small, the matter of the Co-operation Scheme was left over for the next meeting. The Authorized Persons gave their reports, which were very satisfactory. Only one case of praedial larceny occurred in the Somerton district, but the District Constable took charge of it. This is the only case that has been noticed in this district for the past six months. An Authorized Person asked whether he could act in any part of the parish. The Secretary promised to make inquiries. The subject for discussion, viz., "The Curing of Coffee" was dealt with. Nearly all the members gave their views; also the Instructor. The discussion was lively and very helpful. The Instructor intimated that a set of tools could be bought for the Society for pruning coffee. The Somerton Road was brought up, and the Secretary promised to see the Chairman of the Parochial Board about the matter. Dissatisfaction was again expressed at the non-appearance of the Branch reports in the JOURNALS. The item for discussion at the next meeting is: "Banana Cultivation."

J. B. MORRISON, Secretary.

The Journal

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

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MAY, 1915.

No. 5.

BOARD OF MANAGEMENT.

The usual monthly Meeting of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 11 North Parade, Kingston, on Thursday, the 15th April, 1915, at 11.40 a.m. Present: His Excellency Sir Wm. H. Manning, K.C.M.G., C.B., (presiding), Sir Jno. Pringle, K.C.M.G., Hons. L. J. Bertram, C.M.G., P. C. Cork, C. M. G., D. Campbell, Geo. McGrath, R. P. Simmonds, S. S. Stedman and J. R. Williams; Rev. W. T. Graham; Messrs. R. Craig, A. W. Douet, A. C. L. Martin, Archd. Spooner, Conrad Watson and the Secretary, Jno. Barclay.

Apology for absence was read from Mr. E. W. Muirhead.

The Minutes of the previous Meeting were read. Mr. Craig made an objection to the Report of the Meeting of the Special Committee on the Banana Tax in Canada. He said that the cablegram drafted at the Meeting read as if it was from the Board of Management of the Agricultural Society, whereas it was only certain of the members who had met: all the members had not been notified of the Meeting.

Mr. Stedman and Mr. Williams who were present at that Meeting, said that the wording of the cablegram had been carefully considered and signed "Members of the Board of Management," not "*The Members.*"

Mr. Craig also said that the Minutes were not quite in order and asked that the words "he (Mr. Craig) had not got notice on page 122" might be altered to "all the members had not got notice." This was agreed to.

The Secretary read the following letter from Mr. Muirhead dated 10th April:—

"As I won't be able to get up to our usual monthly Meeting on Thursday next, I am returning the railway pass, and kindly mention that I am unable to be present.

Can you find out for me and let me know at the next Meeting, what the value of the importations into Canada is, for Bananas, Citrus Fruits and any other articles upon which increased taxes for War purposes have been placed or are proposed to be placed, and enquire as to whether any effort was made to reduce some, or was suggested by the Government or its representatives of the Deputation; or was it only considered that Bananas were the only article that should be exempt. If this is not so, does not this Society think that representation should be made to the Government at the expenses attached to the despatch of a deputation to Canada so hurriedly should be borne by the Banana growers, and also ask the cost of the deputation."

It was agreed that Mr. Muirhead would require to send in any motion he would like to make on the subject for the next Board Meeting

Mr. Muirhead also wrote in connection with the number of packages of Orange Oil exported in 1913 and 1914, and the value of these, as published in the Minutes, asking how the values were arrived at, as there was such a great disparity in the value of the packages exported in 1913 compared with the number of packages exported in 1914.

The Secretary was instructed to get this information from the Collector General.

Matters arising out of the Minutes:—

(a) *Loan Banks.*—The Secretary submitted Minute from the Governor in reply to Mr. Roxburgh's question *re* Loan Banks asked at the previous Meeting, as follows:—

"In reply to a question addressed to me by Mr. Roxburgh as to whether the Government intended to consider the applications of Loan Banks for an extension of time to repay these loans, I find that extensions have been approved in all cases where it has been deemed necessary on certain conditions which have been laid down and which I consider are equitable."

(b) *C. S. O. letter—Conditions on Free Railway Passes.*—

No. 4295-4815.

3rd April, 1915

"With reference to correspondence ending with the letter from this office, No. 2343-2367, dated the 23rd February last on the subject of the grant of free monthly railway passes to the members of the Board of Management of the Jamaica Agricultural Society, I am directed by the Governor to inform you that at His Excellency's request, the Director of the Railway has removed from the certificate to be furnished by you, the special condition with regard to the personal liability."

(Sgd.) ROBT. JOHNSTONE,

Actg. Colonial Secretary.

(c) *C.S.O. letter—Certificates for Field Inspector of Plant Diseases.*—

No. 4653-4817.

125th April, 1915

"With reference to your letter, No. 8268, dated the 26th ult., I am directed by the Governor to acquaint you for the information of the Board of Management of the Jamaica Agricultural Society, that His Excellency has approved of certificates of appointment being issued to each Inspector of Plant Diseases, and that the necessary steps are being taken to have this done."

(Sgd.) ROBT. JOHNSTONE,

Actg. Colonial Secretary.

(d) *C. S. O. letter—Cotton.*—

No. 4591-4390.

10th April, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter, No. 8082, dated the 20th ult., and, in reply, to say that it is not deemed advisable to publish the correspondence relative to "Cauto" and "Marie Galante" cotton, in accordance with the advice of the Board of Management of the Jamaica Agricultural Society."

(Sgd.) G. M. WORTLEY,

Ag. Asst. Colonial Secretary.

(e) *Authorizes Persons—Secretary's Pamphlet.*—

The Secretary submitted explanatory pamphlet *re* "Authorized Persons" which he had been directed to prepare for issue to each "Authorized Person." He said that as directed at the previous Meeting of the Board, he had circulated a copy of this to each member of the Board and some revisions had been made by the members.

After discussion it was agreed to strike out paragraphs 3 and 4 and to attach copies of the Law and the Schedule, and the Secretary was directed to circulate the revised copy of the pamphlet as it was to be issued.

Mr. McGrath said that he had asked for some information regarding the number of "Authorized Persons" who had been struck off the roll, and the causes therefor, and from the Minutes of the last Meeting he had seen that the Secretary had written the Inspector General who had only sent a note of the total number, stating that as his Office staff was limited, it would take him some time to look up the record and prepare the return asked for. He observed also that the Secretary had only kept full records for the last two years, and in that time 18 men had been struck off the roll for which no reason was given. He thought that full information should be provided by the Inspector General, and if this was provided by the month of July, when the Half-Yearly General Meeting would be held, it would be sufficient.

The Secretary was instructed to write the Inspector General for the full list.

Infectious Diseases of Plants Law.—The Secretary said that he had received the following letter from the C.S.O. on the 31st of March, and had as requested sent a copy to each member of the Board of Management for his views.

No. 4146-4915.

31st March, 1915.

"I am directed by the Governor to state, for the information of the Agricultural Society, that the Director of Agriculture has recommended, for the consideration of His Excellency, that 'pod-rot' and 'canker' of cacao shall be added to the list of infectious plant diseases under Law 3 of 1915, and that rules should be made for the sanitary treatment of all cacao pods after the beans have been shelled and of all diseased pods, as also for excision and tarring of canker in affected trees.

"I am to ask that a committee of management of the society will be so good as to give the proposal of the Director of Agriculture their early consideration and favour His Excellency with their advice on the matter."

(Sgd.) F. L. PEARCE

Actg. Asst. Colonial Secretary

He now also read their replies:—

Mr. Craig called attention to the wording of several sections and said he hoped that the Board would not recommend the Law in the form proposed, as the provisions of it should be considered very carefully first.

He asked the Secretary to read the letter from the Director of Agriculture on the subject which had come before the Instructors' Committee that morning.

The letter was read as follows:—

No. Y. 795.

31st March, 1915.

"I have the honour to acknowledge your letter dated the 25th inst., and to state for the information of the Instructors' Committee that I have duly considered the points emphasized in your letter under reply.

(2) "In the new law there are two classes of plant diseases provided for, viz., 'notifiable' and 'infectious.'

"Under the former it is proposed to declare Panama Disease of Bananas, which will then become, under drastic penalties, a direct responsibility between the owner of the diseased plants and the Director of Agriculture and his special officers.

"For the purpose of this disease, therefore, as dealt with by law, the Instructors of the Agricultural Society will have no responsibility whatsoever and the assistance of these officers will be most usefully apparent in advising any owners in doubt as to the presence or absence of the disease in any case in which they are consulted previous to its notification. As soon as the new rules are issued, I ask you to be so good as to circulate them to the Agricultural Instructors so that they may proceed in a correct manner with regard to any cases of this serious disease that came under their notice.

(3) "Under the heading 'infectious' diseases it is proposed to schedule certain less serious diseases to be dealt with by owners themselves and with regard to these it is believed that the Instructors may do good work by encouraging owners to deal with these according to the requirements of the Law and in reporting to me any serious cases of neglect that require the attention of the Department for the enforcement of compulsory treatment.

(4) "It is obvious that in the case of a 'notifiable Plant Disease' our Inspectors will be liable to be called at a moment's notice whenever a case is reported and that it is neither reasonable nor necessary for the local Instructor to be troubled with the case, or to be informed in advance of the visit.

(5) "Where a systematic field campaign is being initiated, with regard to the 'infectious diseases,' I agree with the Committee that the Instructor should be notified of our operations in advance as soon as these have been arranged for and that the co-operation of your officers in such work is desirable if their other duties and engagements permit, and I will issue instructions accordingly to the two Inspectors of this Department."

(Sgd.) H. H. COUSINS,
Director of Agriculture.

Mr. McGrath and Mr. Graham supported Mr. Craig in his views. Mr. Cork, Mr. Campbell and Mr. Bertram expressed themselves in favour of the proposed Law.

Mr. Stedman said that most of the members of the Board had not seen copies of the Law and knew nothing about the Rules intended to be framed, and it was therefore not fair to ask them to decide until they had read the Law and the proposed rules; he suggested that the matter should be deferred until the next meeting of the Board.

His Excellency said that the matter was urgent and important enough to be considered by a Special Meeting of the Board. Meanwhile he would see that copies of the Law were sent to the Secretary together with the proposed Rules.

It was resolved that a Special Meeting of the Board should be held to consider this matter on Wednesday, the 28th April, at 11. 40 a.m., and that the Director of Agriculture should be asked to attend.

War Gifts.—The Secretary reported progress. He said he was arranging to ship by the special steamer coming out, the S.S. "Erymanthos," a consignment of mid-year Oranges from St. Ann and probably about 50 cases of Lemons from Manchester, also a considerable quantity of preserves, principally Guava Jelly. The Guava season, however was just coming in and he hoped more preserves would be sent in.

He had remitted the total of the contributions from the Branch Societies to the War Fund, which amounted to £154 18s. 11d., to the Bank of Nova Scotia, and he had advised His Excellency, who had sent the following acknowledgment:—

6th April, 1915.

"I have received your letter dated the 31st inst., enclosing a list of contributions made by the branches of the Jamaica Agricultural Society to the War Fund.

"I should like to place on record my thanks to the contributors for their very generous donations towards the fund, as I know that times are somewhat hard, and the list of donations therefore is evidence of the patriotism of the people throughout the island, which is so admirable."

(Sgd.) W. H. MANNING,
Governor.

The Secretary submitted letters from Mr. Aspinall, the Secretary of the West India Committee, and Mr. Dyer, the Secretary of the Vegetable Products Committee, London, as follows:—

19th March, 1915.

"I last wrote you on March 1st., (953) acknowledging your letters of January 28th, February 5th, and 9th. I should also have thanked you for your letter 6865 of February 8th. The Oranges, Grapefruit, Preserves and Ginger Sugar all arrived in first rate condition and have been despatched among the various hospitals whose letter of thanks we shall hope to forward to you in due course.

I am sending to you under separate cover a further batch of letters, some dealing with this consignment and others with earlier shipments. The 400 cases of fruit ear-marked for the Grand Fleet were handed to the Vegetable Products Committee and have been despatched to their destination. The attention of the Vegetable Products Committee was specially called to Captain Bonitto's fruit. In accordance with your special request several cases of fruit were sent to the hospital at Elgin whose acknowledgment we have since received. I note with regret that owing to the lack of shipping facilities you may not be able to send any more fruit. I think that you and your friends have done splendidly in sending over as much as they have done. The recipients have been, and are, most grateful. But for the kindness of your good selves and our friends in Trinidad and Dominica, the sick and wounded in the hospitals in France and Flanders would have been entirely without citrus fruits, for they are almost unobtainable out there at the present time. We shall be shortly rendering to the Army Council a full report of our stewardship in this matter of the fruit, and I shall hope to send you a copy. Meanwhile I need only refer you to the letters of acknowledgments to assure you how much the gift has been valued."

(Sgd.) ALGERNON E. ASPINALL,
Secretary.

Vegetable Products Committee,
London.

22nd March, 1915.

"I beg to acknowledge receipt of your letter of February 26th, respecting the supplies of fruit, etc., which you kindly authorized the West India Committee to hand over to us for the use of the Fleet in the North Sea.

I have now very great pleasure in conveying to you the grateful thanks of my Committee for your very welcome gift of 400 cases of Grapefruit and Oranges and 5 cases of Preserves, which we received at Avonmouth, ex S.S. "Chagres," which were immediately despatched to the Fleet, each case bearing the enclosed label.

In advising the Naval Store Officers at the Bases, I requested them to send an acknowledgment to the West India Committee, who, I understood would forward such acknowledgments to you. I believe that in each case, such an acknowledgment was received by the West India Committee.

Through indirect correspondence, I have learnt that the fruit was most warmly appreciated by the ships' companies, and there is no question as regards the benefit citrus fruits are to the health of the men. The Fleet has now been at sea for nearly eight months, during which time the Admiralty has not included any fresh fruit and vegetables in the regular rations served out to the men. During this time, the Vegetable Products Committee and its various branches have supplied the Fleet with about 700 tons of fresh fruit and vegetables, and the effect of these upon the men's health is testified, not only by a multitude of letters from the men themselves, but more strikingly in the letter received from the Medical Director General of the Royal Navy, which you will see quoted at the end of the enclosed copy of our printed leaflet.

I regretfully observe that you can send us no further citrus fruits this season, owing to the scarcity of direct freight ships. It is more than good of your Society to say that they would have supplied a much larger quantity had steamers been available, and my Committee are, therefore, correspondingly grateful to you for your kind intentions.

Unfortunately, we are now on the verge of spring when the men of the Fleet will want fresh fruit and vegetables more than ever. The immediate future promises a very hard and anxious time, when they should be kept in the best of health and good spirits. There is nothing more helpful in producing this result than a

good supply of fresh vegetables and fruit and it is greatly to be regretted that the absence of steamers prevents you from helping to ensure such a condition to the men of the Fleet. Cordially renewing our warmest thanks.

(Sgd.) E. JEROME DYER,
Hon. Secretary.

P.S.—I enclose a few of our leaflets which you might kindly distribute amongst the members of your Committee.

(Intd.) E. J. D.

The Secretary said there were 120 other letters of acknowledgment. He was instructed to publish some of these as before.

Authorized Persons.—The Secretary submitted the following letter from the Inspector General of Police:—

No. 272-1355.

9th April, 1915.

"I have to bring to your notice that although it has been customary to appoint illiterate persons as "Authorized Persons," it is considered that no good will result by appointing such persons in future, as they are probably ignorant of the directions and procedure to adopt.

2. "If you concur in this opinion, it would be advisable for you to circularize all the branch Agricultural Societies, only to submit, in future, names of persons who can read and write."

(Sgd.) A. E. KERSHAW, Lt.-Colonel,
Inspector General of Police.

After discussion in which it was stated that some of the old type of men who could neither read nor write made some of the best "Authorized Persons," the Secretary was instructed to write the Inspector General and say that the Board could not agree to his suggestion, pointing out that the men received their instructions orally, and that men who were otherwise up to a good standard should not be rejected as "Authorized Persons" because they could not read nor write.

Application for Affiliation.—An application for affiliation from a new local Agricultural Society, which had been formed at Lethe in Hanover, was submitted. The Secretary said that the Instructors' Committee had made enquiry about this Society, and had approved of it. It was really taking the place of another Branch close by, as Lethe was better situated for cultivators.

Affiliation was granted.

Instructors.—The Instructors' Reports for March and their Itineraries were submitted, and directed to be circulated to the Instructors Committee as usual.

Statement of Accounts.—Statement of Accounts up to the end of the financial year (31st March) was submitted.

New Members.—The following new members were elected:—

Rev. C. A. Wilson, 181 Princess Street, Kingston; F. A. Foster, Hope-Waddell Training Institution, Calabar, Nigeria, West Africa; W. P. Smith, care of United Fruit Co., Port Antonio; E. B. Clarke, Dove Cot, Half-way Tree; Chas. H. Picot, Coolshade, St. Ann's Bay; Mrs. L. R. Hiam, 29 Smith Lane, Kingston.

The Meeting adjourned until the day of the Special Meeting, Wednesday, 28th April, 1915, at 11.40 a.m.

COCONUT DISEASES IN JAMAICA.

By S. F. ASHBY, B.Sc., Microbiologist.

The following is being issued by the Department of Agriculture as a leaflet, and brings our knowledge of diseases affecting Coconuts here up-to-date:—

They can be divided according to the part directly attacked into diseases of bud, leaf, stem and roots.

BUD DISEASES.

The most serious of these is BUDROT. The striking feature of this disease in the last stage is a soft stinking rot of the youngest leafstalks and growing point of the stem. Progress and symptoms vary somewhat depending on the point first attacked. Two cases can be clearly distinguished:—

1. Disease starts at the bases of limbs and swords in the outer or middle part of the top, eating upwards and inwards to the heart of the bud.

2. Attack begins in the bud which is killed before the outer leaves fail.

Case 1. Symptoms.—Dropping of young nuts and blackening of the stalks of one or more bunches are early signs of infection. Leaves at the middle of the top turn yellow, wither at the tips, and often break across; most expanded leaves become yellow successively, open out finally, give way at the base and hang down the stem: some leaves, however, may hang while still green. In the last stage of disease a few wilted leaves of the central column stand up alone, enclosing the withered bud, until the rot brings it all over, leaving a bare pole.

The Rot.—If the bases of limbs and swords or the surface of the adjoining stem is examined when young nuts are falling and the leaves yellowing, dark soaked patches or spots may be seen frequently by tearing away the strainer. On opening out the bud in advanced disease yellow spots with brown margins will be found on the leaf bases and young swords in the outer part while at the centre the stalks will be sodden, quite soft, and stinking (like ripe jackfruit) and the top of the stem soft and creamy. The progress of disease at first slow in the hard outer tissues later becomes rapid in the tender bud, but several months may elapse between the first visible signs of disease and a bare pole.

Case 2. Symptoms.—The rot starts in the bud and the first sign of attack is the withering and falling over of the heart; the outer leaves are often green and healthy and a heavy crop of nuts may be present. Following the death of the heart the leaves yellow and wither successively outwards for weeks or months, depending on weather. Inspection shows similar spots on the leaf-bases in the bud and a stinking soft rot at the heart.

Cause of Budrot.—In Jamaica and other West Indian Islands the greatest destruction has been due to a bacterial disease. The evidence points to infection, as due not always to one variety of bacterium but to several kinds of one group, abundant and widely distributed in soil, surface waters and air. Infection starts as minute spots which enlarge and unite the bacteria attacking all elements of the tissue and not being confined to certain parts such as the vascular fibres (gum disease of

cane and wilts due to bacteria). Budrot is infectious but the usual mode of spread is not definitely known; diseased buds attract many kinds of flying insects, especially flies and beetles, and these carry away infection on their legs and bodies. A rotting bud becomes a centre of infection for all coconuts in the neighbourhood.

Treatment.—Under the diseases of Plants Law, 1911, Budrot was declared infectious and rules made for its treatment. If disease has reached the bud the tree must be cut down, the bud leaves pulled apart, chopped up, and burnt promptly, using the older leaves and trash as a basis for the fire; attempts to burn the bud as a whole fail because the heat does not kill the bacteria in the centre. In most cases the top of the stem is also soft and stinking; this should be chopped across below the lowest reach of the rot and the severed piece cut up and thoroughly burnt. If the bud is not visibly affected the disease being in the early stage of case 1 (young nuts dropping, yellowed and withering leaves, blackened spikes) the tree may be fired at the hanging trash so as to burn away the expanded foliage and strainer and so scorch the surfaces of limbs and adjacent stem as to kill the agent of the rot and give the tree a chance to form a new and sound top. If there is no healthy growth four months after firing, the tree must be cut down and the whole top burnt piecemeal. Spraying with bordeaux mixture a few days after firing is advised to prevent fungi attacking the scorched surface (a combined spray of bordeaux and paris green or arsenate of lead is still better as it protects against fungi and beetles.) In Case 2 the bud is the first part attacked and disease is too advanced, before showing up, for hope to save the tree by firing. Before cutting down a man should be sent up to pull out what he can of the withered heart; if the stalks show brown and mouldered, and not soft and stinking, the disease is not bacterial budrot and the growing tip of the stem may be sound and capable of throwing out new leaves. If the stalk show evidence of boring it is due to the grub of the ladybird borer (*Sphenophorus sericeus*) and a few pints of 1 to 15 Jeyes fluid (or similar liquor) should be poured into the heart. If there is no insect attack, but the youngest white overlapping leaflets from the heart show withered tips and yellow spots with brown margins and a fruity smell, disease is due to the pine-apple fungus (*Thielaviopsis*); a powdered mixture of 1 part bluestone and two slaked lime should be thrown into the heart, or better still, a bordeaux mixture of twice usual strength (1 pound bluestone in $2\frac{1}{2}$ gallons of water mixed with $\frac{3}{4}$ pound quicklime in $2\frac{1}{2}$ gallons) sprayed or poured in.

LEAF DISEASES.

Leaf-dieback.—The signs of this disease are brown patches usually starting from the tips of the leaflets and reaching finally to the midrib. The whole limb dries up later and falls. The brown zone is often separated quite sharply from the green of the leaf which may not be spotted. As the long brown patch dries minute black pustules are found, scattered behind its margin. If one of these is scraped off and torn up with a pair of needles in a drop of water and put under a microscope, it will be seen as a torn hollow sack which has set free a large number of colourless eggshaped spores which turn later into dark brown spores of the same shape but divided across the middle by a dark line. These are the spores which spread the fungus causing the disease. The oldest leaves are first attacked and disease is usually

first seen on trees of more than ten years; if younger trees are attacked the epidemic must be severe. The outer leaves fall prematurely and the top diminishes until, in a severe case, a few small leaves are alone left. As the nuts depend on food prepared in the leaves they are unable to grow on and fill, and often fall prematurely ripe. The disease has become very noticeable during the last two or three years round the east-end from Spanish Town to Port Maria. It is worse where the drought has been most severe and is found on every type of soil.

Treatment.—It was declared an infectious disease under the Diseases of Plant Law in 1913, and owners were required to chop away and burn diseased limbs and spray the rest of the top with bordeaux. The trees would be much helped to rapid production of a full crown again by cleaning, forking and manuring. Grass with its roots should be pared away round the trees to a distance of at least 12 feet all round, the soil opened by a strong tined fork (4-8 inches deep) thrust into the earth vertically, loosened by moving back and forth, and withdrawn without any prizing action; 4-6 thrusts per square yard are sufficient and if properly done there is no need for any serious root injury. This method of opening up the soil was originally suggested by Mr. O. W. Barret. A dressing of bone meal (2 lbs.) and sulphate of ammonia (1 lb.) or dried blood (2 lbs.) should be given from 6-12 feet from the bole, for trees over 20 years old and nearer for young trees. The manure should be broadcasted, mixed with dry earth to secure even distribution. If well rotted pen manure is available a dressing at the rate of 1 cwt. per tree would be helpful. If most of the mature leaves are severely affected flaming may be preferred to chopping off the limbs. Where the top is much reduced, with the appearance of dwindling or pencil point, it may be considered better economy to fell the tree and replant.

Spot Diseases.—They are due to a number of fungi. First yellow and then grey dry spots running together and making the leaflets ragged are usually caused by *Pestalozzia*; the spots are dotted over by the black spore masses of the fungus. Another kind produces long narrow spots which dry and split causing the leaflets to shred. One species attacks the midrib of the leaflet forming small grey spots with brown edges; the leaflets break at these points, leaving lines of stumps along the limbs, as if sawed off or eaten away by an insect. In inland districts still another fungus develops brown spots showing concentric ribs and covered by the minute black fruits (*Spherella* spot). *Pestalozzia* and *Spherella* spots are common on the older leaves of young trees (from 1 to 10 years) in damp and neglected localities. In serious attacks the bad leaves should be chopped down and burnt and the remaining top sprayed with bordeaux mixture. The treatment is of little use unless weeds are kept down near the trees, the soil forked at intervals, and drains opened when needful. Spots usually attack trees rendered unhealthy by neglect of soil sanitation and by overcrowding. Limbs below bunches of half grown nuts should be chopped a foot within the foliage region and the ends tarred; the stump lives on and the nuts have less tendency to drop than above limbs chopped near the base.

ROOT DISEASE.

In the leaf and bud diseases described the trunk and roots are sound; in this disease they are discoloured. The symptoms can hardly be distinguished from those of budrot case 1 (yellowing leaves and

dropping nuts, finally withered bud). The heart when cut open is frequently found sound but lacking in sap, growth having stopped due to cutting off of water supply. In old cases the heart browns and moulders away; sometimes the starved bud is attacked by soft stinking budrot and then should be torn up and promptly burnt. Internal symptoms serve to distinguish root disease from budrot; reddish patches within the rind, a red ring, or a red patch at the centre of the stump, when the tree is cut down a foot above the base, proves root disease; cracks from which gum oozes are frequent near the base and the limbs both young and old show red or brown internal gummy patches which may reach the surface and exude gum. The disease does not seem due to a parasite but to chronic unfavourable soil conditions. The affection is confined to trees in stagnant swamps or stiff clay subsoils, and begins to show after bearing age, when the roots are pushing into the subsoil. Drainage may be profitable in wet spots, but no effective cure is known yet on stiff subsoils.

DWINDLING OR PENCIL-POINT.

The top becomes reduced to a few small leaves, and the end of the stem much and rather abruptly narrowed. This is either an advanced condition of Leaf Dieback or (where the latter disease is absent) due to a fungus rot of the roots. If due to dieback, and the top not too reduced, the latter should be fired just before the rains. Where occasional cases of dwindling are found, in a plantation otherwise healthy, the affected trees should be cut down and a trench 18 inches deep dug round the stump 12—15 feet from it, to prevent fungus reaching the roots of adjacent trees.

STEM DISEASE.

Cracks show on any part of the trunk, from which sap escapes and stains the bark black. The rind beneath is reddish brown and sodden, and in old cases, the trunk is hollowed out, leaving the fibres alone remaining, though brown and dry. The rot is due to the pineapple fungus or to another species. The attack starts at a wound often caused by cutlass or fire. In advanced decay the trunk snaps away in a strong breeze. If the patches are treated as soon as the cracks and black stain are seen, the decay can be stopped. The rind should be pared away over and round the patch until sound tissue is reached, the edge of the wound smoothed off, and covered with coal tar. This waterproofing should be renewed at intervals.

BARBECUE COMPETITION IN UPPER CLARENDON.

REPORT OF THE JUDGE.

I beg to submit my report on the Barbecue Competition in Upper Clarendon.

With a view to encourage the better curing of produce in Upper Clarendon, where in the majority of cases the coffee is still dried upon the bare earth, the Trustees of the Clarendon Show Fund decided to offer prizes of 10s. each for the best barbecues built between June 1st., 1914, and February 28th, 1915. Unfortunately just at the time when the people were busily making plans for constructing them

the price of coffee fell to a most discouraging degree and many of those who had entered for the Competition had to fall out.

Twenty-two barbecues have been awarded prizes. These have a surface area of 6,589 square feet and are nearly all very substantially built. They are well distributed over districts in many of which none existed before, and I have no doubt the good example set will have a reforming effect.

The following is a list of the Prize Winners:—

T. B. Wright, Mahoe Hill; Wm. Cross, Mahoe Hill; T. Turner, Mahoe Hill; J. Dyke, Frankfield; P. Dyke, Frankfield; Mrs. Melhado, Frankfield; J. Knight, Frankfield; Z. Knight, Frankfield; C. McLean, Far Enough; J. James, Far Enough; S. Brown, Kellits, Chapelton; E. Bartley, Kellits, Chapelton; J. Campbell, Kellits, Chapelton; Corpl. Russel, Kellits, Chapelton; J. Forster, Kellits, Chapelton; L. Pinto, Kellits, Chapelton; E. Radlin, Kellits, Chapelton; T. Davis, Smithville; B. Gayle, Smithville; Rev. W. Turner, Crofts Hill; W. Rainford, Spaldings; G. McNamee, Moravia.

(Sgd.) S. A. SCHLEIFER,
Agricultural Instructor.

Chapelton.

March 5th, 1915.

CORN GROWING COMPETITION IN MIDDLE AND LOWER CLARENDON.

The May Pen Branch of this Society offered prizes for a Corn Growing Competition to be held in the districts of Middle and Lower Clarendon. The Parent Society backed this up with a grant of £3 to help with the prizes. Fortunately the seasons were good and the Competition was a success.

The following is the report of the judge, Mr. Schleifer, the Agricultural Instructor.

To the May Pen Branch
Agricultural Society.

Gentlemen,

I beg to submit my Report on the result of the Corn Growing Competition in Middle and Lower Clarendon.

This Competition has been very interesting and instructive, and should have a far reaching influence on the production of corn in the future especially if a market can be found for the product. Should continued encouragement be given to corn growing I have not the slightest doubt that the importation of this article would be a rapidly diminishing quantity. The Competition under review has demonstrated the possibility of producing thousands of bushels in Clarendon during the months of January, February and March, while the Competition in the Lamb's River district of Westmoreland some time ago demonstrated the possibility of producing large quantities in that parish in the months of June, July and August. With careful manipulation it seems quite possible for a continuous supply to be kept up throughout the year and in no case would the amount in store be more than three months old. Corn well dried can be easily kept free of weevils for this period. In days prior to the organization of Agricultural Branch Societies throughout the Island and possibly before the days of Agricultural Instructors, I understand an experiment to supply the Government mules with home grown

corn was tried and resulted in failure. I certainly think that with the agencies at present at work such an experiment if repeated could not end in failure and would result in the building up of a lucrative industry in districts where the problem of even being able to exist is a difficult one.

I suggest an alteration in the Competition as at first planned the conditions in the Mocho Hill being so different to those in the Plains, it is difficult to judge them together, I therefore recommend that they be classed separately and that the prizes be re-arranged by your Committee accordingly.

Eight fields were judged in the Mocho division distributed between the Kencoe Backwoods, Richmond Park, Stewarton and Brixton Hill, and six in the Plains distributed over the widely divided districts of May Pen, Palmetto Pen, Portland, Gravel Hill, Tweedside and Osborne Store. Several who had at first entered the Competition withdrew from the unfavourable weather condition and a few fell out chiefly because animals entered and damaged the fields, driving home, I hope, the lesson of first securing the premises by a good fence before beginning to cultivate, especially when we grow such tempting crops as corn.

The havoc wrought by thieves was also apparent in many fields.

The following method of judging was adopted:—

The owner of the field was made to choose one-sixteenth of a square chain from the part of the field he considered best and I did the same from the part of the field I considered poorest; these portions were then reaped, shelled and measured in my presence and with my assistance. From these the yield per acre was estimated.

The results of the Competition are:—

I.—MOCHO.

- | | |
|-------------------|--|
| 1. Robert Adams | Land forked and planted 5 x 4 feet, 4 to 6 grains each, 99½ bushels per acre. |
| 2. Ivan Francis | Land forked and planted 5 x 4, 3 to 4 grains each, 70 bushels per acre. |
| 3. Philip Lennan | Land not forked but well stirred by hoe, 4 x 4 feet, 5 to 6 grains each, 67½ bushels per acre. |
| 4. Samuel Francis | Land not forked, planted 5 x 4 feet, 3 to 4 grains, 55 bushels per acre. |
| 5. David Alison | Land not forked, planted 5 x 4 feet, 3 to 4 grains each, 55 bushels per acre. |
| 6. R. Alison | Land not forked, planted 5 x 5 feet, 5 to 6 grains each, 53¾ bushels per acre. |
| 7. J. Alison | Land not forked, planted 4 x 4 feet, 3 to 5 grains each, 52½ bushels per acre. |
| 8. R. Gibson | Land not forked, planted 6 x 6 feet, 4 grains each, 33¼ bushels per acre. |

The fields of Samuel Francis and David Alison adjoin each other. Samuel Francis kept a faithful record as to time of planting, rainfall, etc, Alison kept none.

II.—LOWER CLARENDON.

- | | |
|---------------------|---|
| 1. C. L. A. Rennals | Land forked, planted 5 x 3 feet, 3 to 4 grains each, 88 $\frac{3}{4}$ bushels per acre. |
| 2. Thos. Green | Land not forked, planted 4 x 4 feet, 4 grains each, 60 bushels per acre. |
| 3. Peter McGill | Land not forked, planted 5 x 4 feet, 4 grains each, 55 bushels per acre. |
| 4. C. F. Dennis | Land not forked, planted 5 x 4 feet, 3 to 4 grains each, 50 bushels per acre. |
| 5. A. B. Francis | Land not forked, planted 5 x 3 feet, 4 grains each, 46 $\frac{1}{4}$ bushels per acre. |
| 6. William White | Planted 4 x 2 feet, 4 grains each, 25 bushels per acre. |

Ten per cent. should be struck off each for shrinkage in additional drying.

Taking soil conditions into account Dennis and Francis may be regarded as a tie and in case of a prize the same should be divided.

From the lack of symmetry in yield in certain fields it was evident that careful selection of seeds for planting was neglected. This opinion was borne out by admissions made. The wonderful powers of careful seed selection and of the use of the fork have been fully illustrated once more.

The latter is especially serviceable in the Mocho district where there is a common fallacy that forking would cause the drying out of soil.

The Mocho Branch Society is to be congratulated upon the fine display made by its two members who are wise enough to make use of the forks recently provided by that Branch for the use of its members.

Samples of corn are sent from each field which should be forwarded to the Secretary of the Parent Society after members have seen them.

(Sgd.) S. A. SCHLEIFER.

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RICE CULTIVATION.

It is probably an unknown thing in many of the parishes, that a considerable amount of rice of excellent quality is grown in the Western parishes of this Island, and that it may be had in the local markets at prices below some brands of inferior imported rice.

Up to recently rice growing was confined to the coolies on the sugar estates.

Their principal food is rice and they found it a great saving to utilize the swamp lands considered worthless by the proprietors for growing their own food.

When they grew more than they required for their own consumption, they sold the surplus grain in the local markets, thus creating an appetite and a demand for the article.

Latterly many creoles have learnt to grow rice and have found it a paying industry, and now rice growing is an ever increasing branch of agriculture in these parts. The acreage under cultivation however, is very small in comparison with the large expanse of swamp lands and also with the population of coolies and creoles interested in its growth. The reasons are not far to seek. Swamp lands are generally parts of large properties, as small settlers when purchasing lands generally avoid them.

They occur in large pastures and cattle runs, and this makes expensive fencing a necessity. Birds devour a large amount of rice. Flocks of doves and wild ducks, chiefly "Whistlers," feed in the rice fields and many men are afraid of planting fields far from their houses as the birds cannot then be kept away.

This last difficulty can be overcome by extensive planting, so that when the birds have fed, the crop will not be appreciably diminished.

There are great possibilities for the development of the rice industry. There is that large expanse of swamp lands, ten to fifteen thousand acres in area, known as the "Great Morass," two thousand acres of which belong to the Government. If these lands were opened up and coolies who had served their indenture were encouraged to go there a large addition would be made to the profitable productions of these parishes. One asks why is it not done?

R. C. SOMERVILLE.

Bethel Town P.O.

RICE GROWING.—NO. II.

In continuation of my article on rice growing in Westmoreland, I now add a few facts that might be of interest on this promising industry.

The proprietors of George's Plain Estate have for some time been engaged in hulling rice and own a splendid plant, the machinery of which is worked by steam and water power combined.

The rice is bought from the coolies who are tenants on the neighbouring plantations and on George's Plain itself. The price this year has been 10s. per 100 quarts of dahn. The dry dahn is treated with steam which causes the husk to smell and burst and when this is again dried and passed through the mill it comes off very easily.

The machinery not only thrashes the rice, but separates it from the trash and finely broken grains. There is no waste whatever as these are ground into a fine meal and the product is known as rice bran; this is a splendid stock feed, about the cheapest I know. The average is about two bags of dahn to one bag of clean rice.

The rice is of the very best quality "white" and any one who has not eaten it has a surprise in the excellence of Jamaica foods awaiting him.

The machinery at George's Plain is capable of hulling 40 bags a day and usually mills between one and three thousand bags annually.

I know that if proper machinery were erected at Negril and the Great Morass planted out in rice, we could supply all the rice that Jamaica consumes and would have an export trade of considerable importance.

There is this great undeveloped resource of our Island waiting for some enterprising capitalist to turn into a golden harvest. Ten thousand acres of land in one huge expanse of useless morass and thousands of time expired coolies who would find themselves in congenial and lucrative employment, and all the money that goes out of the country for imported rice stopping right here, are the subjects I commend to our legislators.

The opinion is current that the banana has seen its best days, that sugar has had a hard fight,—shall we not look in some new direction for a paying industry?

And is there any other with such an established permanent demand as is rice which forms so large a part of the diet of all classes of the community?

All I ask is that enquiry be made into the possibilities of the industry, and I am confident that there can be only one result, and that is, a knowledge that we have still one undeveloped resource which has great possibilities behind it.

R. C. SOMERVILLE.

THINGS TO BE OBSERVED.

A. ABOUT BANANAS.

1. Bananas planted at the same time, on the same property, and under identically the same conditions, will often mature at intervals of from one to five months.

Conclusion.—The disparity lies in the plants. Not only should the utmost care be exercised in the selection of “suckers,” but there should be an assortment before planting. Have large and medium suckers planted in different sections.

2. The healthiest “eye” on a sucker is almost invariably found on the side remote from the point of contact with the mother plants, and located between the stem and the bulb.

Conclusion.—This eye should be saved and set well under in the hole, so as to establish a good footing for the future plant. Be on the look out for another plant which may grow from that part of the bulb nearest the surface. This usurper may take the lead, but if allowed by mistake to grow will produce an inferior bunch of fruit, and will get uprooted very easily.

3. Forking during the fall of the year does not insure a spring crop of bananas, and often proves a set back.

Conclusion.—The matured roots are badly broken, and are quickly overtaken by winter. If forking be attempted for any exceptional reason during early Autumn, this should not approach within four feet of a well advanced plant. The roots torn up should be cut regularly off with a sharp spade.

4. A neglected sucker very often has the effect of causing a “false” hand on the bunch of a mother plant, reducing, for example, a straight to an eight hand.

Conclusion.—Suckers are rapid gormandisers, and exist at the expense of the crop. The earlier they are removed the better.

B. ABOUT COCONUTS.

1. Oval nuts of fair size and weight very often fail to attain the standard. They are wanting in circumference.

Conclusion.—Not only should care be exercised in the selection of healthy seedlings, but the sound variety should be sought.

2. Plants deposited in holes about three feet deep very often die back in dry weather.

Conclusion.—The subsoil is lacking in vegetable mould. Fill in surface soil to about twelve inches from the surface before planting. Fork up the soil in a circle from three to nine feet around the young plant, and mulch as a provision against dry weather.

3. Three trees planted but a few feet apart, and in triangular form will bear only on the sides remote from one another.

Conclusion.—Plant in straight rows; and bear in mind that in loose or sandy soil coconuts have been found to extend their roots as far as sixty feet.

4. Lightning can only strike a coconut tree during a thunderstorm, and this seldom happens. Even then the wilting of the leaves, and the dropping of the fruits is the process of a couple of days.

Conclusion.—Signs of decline are in the great majority of cases symptoms of disease. Consult, if needs be through the Secretary of your Branch Society, those who are able to save your diseased trees, which if left alone will die, and cause others to die.

(To be Continued.)

A. P. HANSON.

MULCHING.

BY A. NORMAN PALMER.

(Read at the Meeting of the Troja Branch on Thursday, 25th March, 1915.)

1.—What is mulching? Spreading a layer of grass or trash on soil.

The subject of mulching is one which is worthy of much more attention than is generally given to it.

Of late, the weather conditions in Jamaica have been very uncertain, and periodic droughts of sometimes long duration occur frequently.

It is at such times that planters who have no facilities for irrigating their properties, feel the need of some means of conserving the supply of moisture that is in the soil.

It is a well-established fact that in an acre of ground we sometimes find as many as four different kinds of soil, e.g., heavy clay, light sand, loam, and sandy loam. Such soils all have different retentive powers. The heavy clay, being more able to retain moisture, in greater quantity and for a longer period than the light sandy soil, is less liable to suffer quickly from the effects of drought than any other kind of soil except perhaps one well filled with humus.

Some of us have the misfortune, no doubt, to cultivate on light sandy soils with low retentive power, on account of the porous nature, which not only allows the water to drain away rapidly but to evaporate from the surface more rapidly. Cultivators on such soils are never certain of their returns unless they have constant and abundant rainfall.

Now such persons need not worry if they will only apply the panacea "mulch."

The advantages of mulching are numerous:—

1st.—It prevents the rapid evaporation of water from the surface of the soil, and by thus conserving the moisture, it promotes the rapid growth of plants (upward movement of water in times of drought.)

2nd.—It prevents the surface of the soil from getting hard and baked by the hot sun. This is of course, a very undesirable condition, for the moment surface soil bakes, the air cannot enter the soil, and if no air enters the soil, nitrification cannot take place, and without nitrification in the soil, we might as well plant in the sea.

3rd.—Mulching keeps down the growth of weeds. This is a very important point. If a man who plants a field of one acre, mulches half an acre thoroughly and does not mulch the other half, he will find that, when the half not mulched requires three or four weedings for the year, the part that has been heavily mulched will only require one weeding.

The practical agriculturist can see the great advantage in that, especially to the man who has acres of cultivation. The comparatively small expense which will be incurred in having mulch spread on, will be far exceeded by the savings on the item of grass weeding, which as you know is a big factor in cultivating.

4th.—Besides the first three named advantages of mulching, there is a fourth, namely: It prevents the washing away of the fine rich surface soil. On hilly lands you know there is always the tendency for the fine soil to be washed down by the torrential rains. This collects as a mud in the hollows at the foot of the hills and thus you find that while these glades are very fertile, the exposed hillsides are comparatively sterile. The judicious use of mulch on these hillsides, however, would serve to obviate such a condition of things.

5th.—Besides all the above, mulching eventually increases the fertility of any and all soils on which it may be used; for, after a time the mulch rots and forms manure, which may be incorporated into the soil, adding rich and much needed plant food.

6th.—Mulching prevents the rapid exhaustion of soils. All cultivators with any experience, know that if the same crop be planted, year by year on a soil, without manure, that soil gradually becomes poorer and eventually ceases to give an appreciable yield of that particular crop. Since, however, mulching helps the soil in the five different ways named above, it follows that a soil which is constantly mulched will last longer than one which has had no help in this direction.

7th.—Kinds of mulch:—(a) Earth mulch; (b) Vegetable mulch, *e.g.*, Guinea Grass, Coconut boughs, banana trash, leaves and branches of trees, etc.

8th.—Examples of benefits that have been derived from mulching, *e.g.*, Rio Magno.

G. P. Campbell of Williamsfield.

My own experiments in school gardens during the last six years have led me to appreciate fully the value of mulching, and I hope the day is not far distant, when not only every member of this Society, but every cultivator in Jamaica, will realise and experience all the benefits to be derived from a scientific and intelligent application of the mulch.

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No one can lay down rules or systems for farming. Each man must work that out for himself, using all the information and experience available and as the farmer's knowledge and ability to think grows so will his management grow and change.

There are about 180,000 acres planted in citrus fruits in California. There are about 8,000 citrus growers, the average holding being about 20 acres. The annual shipment is now about 14,500,000 boxes, approximately one-sixth of the world's supply. (From Circular No. 121 of the University of California, College of Agriculture.)—The Agric. News, 30.1.15.

YAMS.—A The Harvest Festival at Refuge Church at Stewarton (Clarendon) Mr. W. O. Parchment of Stewarton presented a Mozella yam weighing exactly 100 lbs. This yam was sold at 4/-.

(Being paper read at meeting of the Maidsione Branch.)

Industry, as defined by our ordinary dictionaries is habitual diligence in any employment; steady application to labour. Both these definitions lend themselves readily to our fancy. Taking a further step we see that industry is the habit of doing one's work, whatever the work may be, faithfully, during the working hours. "Habit is second nature" and we would be glad indeed, could we see our people acquire it. It is not an impossibility for the majority of the peoples of all progressive countries acquire it. To assist in the acquirement of this habit the subject may be viewed thus: (1) Industry in its true form (2) Industry in its mistaken form (3) The good results of Industry.

1. Industry in its true form. Longfellow's "Village Blacksmith" depicts accurately, Industry in its true form. There we find, "week in week out, from morn till night, you can hear his bellows blow" and "His brow is wet with honest sweat, he earns whate'er he can," for "Each morning sees some task begun, each evening sees its close."

We are not many gathered here, yet there is a diversity of occupations. We see the Clergyman, the Instructor, the Day School Teacher, the Farmer. There is nothing to prevent each in his sphere from being assiduously engaged at his calling. It must not be construed, however, that to be industrious, one must be a slave to the work and not share in wholesome recreation. "All work and no play" the saying goes, "makes Jack a dull boy." What is meant is, do not waste or trifle time, but, "work while you work and play while you play."

Let us look awhile at the farmer. Before he starts for the field he should see that all the tools required for the day are in proper order. He should sharpen all those require sharpening the evening before. Failing this, it should be done very early the morning, then like the Father of the faithful, start early. Do not abuse time in formal salutations on the way. Remember an hour in the morning, etc. Do not overwork nor underwork. Be conscientious even when the work is your own, and you can do no less when engaged by another. This will prevent the unpleasantness so often witnessed between employer and employee, besides, the work will be done without the employee feeling the stress.

2. Closely allied to this way of working is the false or wrong form of Industry. It carries in its train: hurry, confusion, loss of temper, overwork, "short-hand" work, sometimes loss of occupation, to say nothing of the loss of health and character. Of these, the last named should ever be carefully watched and protected, for—

When wealth is lost, nothing is lost,

When health is lost, something is lost,

When character is lost, *all* is lost.

You all know the tale of the Hare and the Tortoise. The hare, on rousing from sleep and wishing to carry off the prize, began real work *too* late, and had to endeavour to perform an impossibility, while the tortoise, without any show or fuss, carried off the goal. It is *not* wisdom to start on any work and court defeat, for, "Whatever

is worth doing, is worth doing well." Let this be another motto of yours.

3. Here are some of the good results of Industry: Perseverance, Independence, Honesty, Honour, Patience, Accuracy, Self Respect, Courage, Justice, Success. These noble virtues will be secured. These will follow also, promotion, constancy of employment, old age provided for, because Dame Fortune's door would have been opened by this key—Industry. Ever keep in mind the adage—

"The heights by great men reached and kept.

Were not attained by flight,

But they, while their companions slept,

Were upward toiling in the night.

"Let us, then, be up and doing,

With a heart for any fate;

Still achieving, still pursuing,

Learn to labour and to wait."

—OR—

SEASONABLE HINTS.

We have been asked again why we do not write these Seasonable Hints regularly. Simply because in the issuing of this JOURNAL there is nothing more difficult than to write notes ahead, giving hints about the planting and reaping of crops when local conditions are so different from east to west, from north to south, from low-land to upland, and our readers will not realize—although we have so often stated it—that such notes must be read with discretion and judgment. Hints cannot be made applicable to every little district.

* * * * *

MANURING.—In one of the Agricultural Instructors' reports the following paragraph appears:—

"On this holding all around a cane mill and sugar-boiler, heaps of ashes and cane refuse, the accumulations of years, rose high, while a couple of chains away the plants—Bananas, Coffee and Cocoa—were perishing from want of some fertilizer."

It often happens that men complain of their land giving out, that they do not get much good crops as formerly and they never seem to think that a large part of the wood ashes and all the cane trash that has come from their field could be used for manure. Both cane trash and wood ashes make excellent manure and no particle of these should be wasted.

* * * * *

PREPARATION OF LAND.—The early preparation of land for planting is worth a great deal to the planter, and yet so many simply wait until the week of planting, turn over the soil hastily and plant. In the first place the weather, especially on clayey soils, can do much for him: When the land is cloddy, it takes a tremendous amount of labour to get it crumbled down, whereas if left to the sun, breeze, and the heavy showers that fall, it crumbles down without much labour. Then again, land turned up early and receiving showers, will absorb a good deal of moisture, and most of all, especially in clayey soils, exposure to the air liberates plant food, especially nitrates.

Cultivators should keep this in mind and not have the land intended for a crop lying untouched until planting time comes. Even for bananas we should leave the holes lying open for a month. For corn, too, hasty preparation and planting is a mistake.

* * * * *

COFFEE.—Some erroneous ideas are current about coffee growing. Most of the written information on the subject has been got from Blue Mountain experience where the circumstances are generally a great deal different in some ways from other parts of the Island. Short top coffee has been advocated as the system under all circumstances and conditions, and any comparison of results made has been made between well cultivated short top against switchy trees generally called long top but which in reality are simply neglected short top trees run half wild: trees planted close together and branches interlocked like a jungle.

Well cultivated long top coffee is a rarity. In the first place, trees meant to be grown as long top have to be planted not closer than 8ft. square and 10' x 10' is certainly preferable. Most of the neglected short top called long top was planted 3 or 4 ft. apart, seldom more than 6 ft. apart.

Even Mr. H. Q. Levy in his articles on Coffee in this JOURNAL, we think has made a mistake when he states, that above 2,000 ft. short top coffee should be adhered to while below that long top coffee should be grown. We do not think this applies generally outside the Blue Mountains. It depends on the soils and conditions generally. As a matter of fact, we know places at 3,000 ft. elevation on both red and black soils, where short top coffee has not, in practice, been so successful in results as long top has, all the time they have been growing; we know of other places at the same high elevation where "short top" does not succeed at all. The only objection to long top coffee that we know of, is the difficulty of picking the berries, where small boys and girls are so often employed to do the picking; branches often get broken.

In Costa Rica, where coffee is grown at a high elevation, there is no such thing as short top coffee grown. It is all long top, but the trees are planted wide to give them plenty of room to spread, and the average return in that country is more than we ever get here even on the best estates.

This is a subject we should be glad to hear about in correspondence, actual experiences preferred.

* * * * *

There will be a very large banana crop coming in between July and October, and probably there will be more bananas available than ever in the history of the Island, yet the demand owing to the war conditions is smaller and the price less. The question is naturally asked—what can be done with the surplus bananas? It certainly does not pay to feed stock with bananas where money has been spent on the cultivation, but this is certainly more economical than wasting any of this good fruit. We know of planters who feed their mules and horses on bananas, both green and ripe, and so save a large proportion of corn. We consider it waste to feed much in the way of green bananas to animals. If the fruit is allowed to ripen there is more food value in it. This applies to pigs especially, and saves trouble and expense of cooking the green bananas. Large use should be made of the bananas in the household. Stocks of dried bananas simply cut into chips should be laid by in barrels and tins and ground into meal as food for the house when required.

* * * * *

We are very much disappointed that a large trade has never been built up in Banana Figs; we know they are appreciated abroad; we know there has been a demand outside of Germany, which was the chief market before the War, and yet through different circumstances we have not been able to provide Banana Figs; yet there will probably be millions of fine bananas available. Soldiers at the front would appreciate packets of Banana Figs in their knapsacks. These banana figs are at once a fruit and a substantial, nutritious, palatable food, proved to be very sustaining, and not thirst provoking as so many other preserved foods are. A philanthropic planter here has given us a cheque in order to send a ton of banana figs right to the soldiers at the front, and we are arranging for this. We will make the most of this as an advertisement of Jamaica Banana Figs; but there is a great lack of organized effort to push trade abroad in many side products; only banana figs should not be a side or minor product, but should be a staple product, exported in thousands of tons.

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STOCK NOTES.

WATERING.—This paragraph does not refer to watering gardens but to watering animals—draft stock. We saw the other day a drayman who fed his mules with 2 quarts of corn each and then immediately let them drink water. They had been very thirsty evidently and drank eagerly and long, and the result was that one had a bad attack of colic, while the other looked uncomfortable and no doubt had belly-ache. Every owner of mules and horses should take care himself, and warn his servants, that the animals must be watered before they are fed. If a beast eats heartily of corn and then drinks freely afterwards, some of the corn is washed out of the stomach entirely undigested, and if this does not cause an out and out colic, it certainly causes a good deal of disturbance and the corn passes out entirely undigested.

CALVES.—Many calves which people attempt to raise by hand die every year from scours, the direct cause of which is feeding from a filthy pail. After feeding, the milk pail must be cleaned out immediately, otherwise the milk coagulates in the seams, and in spite of the ordinary casual washing the pail becomes sour and rancid.

:o:

PIGS.—The Island is under-stocked with pigs at present. No shoat should be killed now but carefully kept. Feeding is plentiful now, and likely will be more so. See that the pigs have plenty of clean water to drink and that they are not kept in filth. Pigs that are tied out should be shifted every other day to a clean place, whereas they are commonly kept for weeks, even months, without being moved. Those pigs kept in pens should be well bedded with grass and trash.

:o:

DOGS.—Dogs are an important part of the household economy, first as watch dogs, and second, for hunting rats and mongoose. They are worth being decently fed and kept clean—they are often only fed on an odd scrap now and again and are not often washed to get rid of the fleas, which infest them. Fleas are dangerous pests. Whenever the cows are sprayed or washed for ticks, the dogs about the yard can be done also: the same wash will kill fleas. Cats are also subject to fleas and as they are better ratters than dogs in the house and yard, they are useful; they object to water but all the same catch them up and give them a wash like the dogs. After the wash they will disappear like a shot but will come back again all right. Instead of the wash they can be dusted with insect powder or sulphur.

:o:

GOATS.—With the hot weather lice will become rampant on goats, and these animals must be sprayed or washed. If a goat that is well fed, is seen not to thrive, the first thing to look for is lice which can be got rid of by washing or spraying, with a tick wash. If they do not thrive after the lice are got rid of, then suspect worms, and dose them with two tablespoonfuls of castor oil and one bare dessertspoonful of turpentine or jeyes; this for a full grown goat. The drenching of goats must be carefully done. We prefer to give goats medicine in powder form in a little cornmeal. Sulphate of Iron will get rid of internal parasites, but must not be given to the goats heavy in kid; so will powdered borax, although this is not generally known. A teaspoonful of powdered borax in food is the dose for a goat.

:o:

BUTTER.—When cream is hard to churn or turns like whipped cream in the churn, add cold water, about half as much as there is cream in the churn; this brings the butter out in a few minutes.

In making butter if it turns out streaky one cause is that after the butter has been salted and has stood for some hours the salt causes the streaks. It has been experienced that this has been overcome by leaving the butter longer—that is, churning at night, and working the butter in the morning. Correspondents might say what has been their experience. Butter-making here is becoming important. We ought to be able to replace all the imported butter by home made.

:o:

YELLOW BUTTER & MILK.—The rich yellow colour of some milk and some butter has usually been set down to the individuality of the cow, and generally the Guernsey breed have been credited with pro-

ducing milk of this desired tint, followed secondarily by the Jersey breed. Experiments have been carried out by the Missouri State Experiment Station, U.S.A., which go to show that while this is to some extent a breed characteristic, the intensity of this yellow colour in milk and butter may within certain limits be increased or diminished at will by changing the animals rations. Green grass is probably richer in pigment—that gives the milk and butter that golden colour called Carotin—than any other dairy feed. Green corn will also produce a highly coloured butter. Hay and yellow corn do not produce this colour.

—:O:—

WORKING A STALLION. —I traded for a stallion that had failed in service. His colts died; his mares would not produce. So I put him to work when threshing began, hitching him to the water-wagon.

It took the surplus flesh off him, leaving him quite thin at the end of the season. In January I began to feed him and by April he was in good shape. In spite of his bad name, he settled 45 mares and the next spring 40 healthy colts were foaled. None of them died while I owned the horse. I advise all my friends in the stallion business to work their horses. The colts from such sires are more vigorous and seem more resistant to navel trouble. Also it gives better blood and stronger muscles to the stallion. *Exchange.*

—:O:—

The "*Breeder's Gazette*" of Chicago says:—

"Scottish horsemen fairly excelled themselves at the Annual Stallion Show at Glasgow. The attendance was in excess of any previous gathering of the kind. The exhibition from the stock-owner's point of view, was the best held for many years."

This Stallion Show refers to Clydesdale stallions, the demand for which has never been better than now. This is probably owing somewhat to the number of heavy horses that have been in requisition for the war and which means a good deal of slaughter; and also owing to the fact that the Belgian horses are practically no longer in existence; and a large number of Percherons—a French breed which is a great favourite in the United States—have also been destroyed. Many breeders of Percherons also have been killed on the battle fields of Northern France. Every little village in the Perche district of France, where Percherons are bred has its improvised hospital for wounded soldiers. The women are doing what they can on the farms to take the place of the man, and not a few of them are loading and spreading manure and ploughing. Old men who had ceased to work have turned out again.

—:O:—

CONSTITUTION IN HORSES.—The constitution of a horse determines to a great extent his usefulness and longevity. A closely knit, heavily muscled frame is desirable; large active internal organs are required and a rugged persistent vitality is an absolute necessity. The whole body must also be permeated with vigor.

The indications of constitution should be carefully studied by everyone on whom devolves the responsibility of selecting horses for any purpose. The degree of a horse's vitality is not always readily recognized, but it dominates his health and usefulness. Breeders and buyers need to become familiar with its manifestation.—*Breeder's Gazette*, Chicago.

POULTRY NOTES.

Ducks are not so commonly kept as fowls, which are more generally useful.* But in many parts of Jamaica, fowls do not thrive with as little trouble expended on them as ducks do. This is particularly the case in very wet districts. In such parts it is often difficult to raise chickens, and to keep fowls clear of roup. Now ducks are nearly proof against colds, which are the result of damp and chills. We have many such wet districts here where people struggle along with their fowls under difficulties which would not be experienced with ducks. Not that they would not have troubles, but these would only be such as are met with, incidentally, in rearing any live stock. We do not mean at all that people who live in dry parts, or districts which are not very wet, should not keep ducks. There is no reason why they should not, even if there is not enough water to provide a swimming pond. In fact ducks are often more easily and more cheaply raised than fowls, where there is no water for them to swim in, but where they have a good range and plenty of water to drink. The ideal place is a banana walk that is irrigated. Ducks are, moreover, preferable where there are gardens kept, or when seeds are being planted. Hitherto it has been considered that ducks are not so prolific as fowls and therefore, that there is not so much to be made out of them, because they do not lay so many eggs. This, however, does not now hold good, because, just as there are modern breeds and modern strains of fowls in which almost phenomenal laying powers have been developed, so the fecundity of ducks has been greatly increased, and improved breeds and strains introduced, both for table and for laying purposes.

Indian Runner Ducks are like Leghorn and Minorca fowls; they are non-sitters, and lay perhaps 180 to 200 eggs under favourable conditions, in the course of a year with good treatment. There are not many breeds of ducks usually used in the United Kingdom or United States that are suitable for our conditions in Jamaica—neither Aylesburys, or Pekins, or Rouens, or Orpingtons are, but Indian Runners suit the climate. Indian Runners however, have their faults; they do not make nests, nor will they lay in a nest, as a rule, unless coaxed by being shut in a house or pen every morning, with a comfortable nest of straw in a corner and a nest egg in it. If left alone to wander, they drop their eggs anywhere, many are thus lost. It is wise to keep Indian Runners in a pen from early morning until the afternoon and then turn them out. In this way the eggs are saved. They are very easy feeders.

The most common breed in the West Indies, and what may be looked upon as the native duck, is the Muscovy. This grows to as large a size as any other breed such as the Pekin or Aylesbury, for instance, and is very hardy. It is usually pure black, or pure white, or black and white in colour, the black having a green sheen as in the Langshan fowl. The Muscovy is not however, a very good layer, though this may be owing to the fact that the breed has never been taken in hand, as have other breeds more popular in the North, and improved by careful breeding and feeding. In fact it is a breed very little used in the North. With this breed it must have been a case of survival of the fittest before it reached its present degree of hardiness, for it thrives and multiplies in the gutters and back yards of tropical cities, and we have seen Muscovy ducks paddling along the gutters

of lanes in Kingston, with trains of active youngsters following, right among the feet of passers by. The capacity to live under the roughest conditions, breeding anywhere and anyhow, is or has been obtained however, at the expense of quickness of growth, fecundity in egg laying, and tenderness of flesh. In these points the Muscovy cannot compare with the well-known, improved, modern breeds mentioned above. There is an opportunity however, for enterprising breeders to improve this breed, by careful mating and feeding, building upon its hardiness and activity, which should be retained by selection. By this means a fine breed might, ultimately, be produced most suitable for the ordinary planter in the West Indies, who may wish to have ducks about his place to pick up odd trifles and be ready to be fattened for table when wanted, but who does not mean to spare much time and trouble over ducks. Such a man is almost always willing to buy a fresh drake from a known breeder at a fair price, so that he may have fresh blood to keep up the size and stamina of his flock. As a breed Muscovies have been greatly inbred, and we have been the only ones we think to import fresh blood among Muscovy ducks that we can recollect. The first progeny of these imported ducks were very fine birds, very quick growers, very large birds. We have however no love for Muscovies among our fowls and passed them all on to other breeders.

The Muscovy is a different species from other ducks and it must be particularly noted that the eggs take five weeks to hatch instead of four weeks, and that the cross with the ordinary ducks, Pekin, Aylesbury, Rouen, etc., results in mules, that is, the ducks of such crosses will lay, and are usually fine layers, but the eggs will not hatch. The Muscovy duck does not lay many eggs, just as many as she can cover, twelve to twenty. She makes a good mother, being attentive and careful, though vicious in other respects. The Muscovy drake is often very cruel to other birds kept in the same yard, and it is not wise to keep a lot of Muscovies running among fowls. At the same time unless the wings are cut, they are hard to keep apart, as they have powerful wings, and can fly like a wild bird.

:o:

COMMENTS.

SUBSCRIPTIONS.—Members of this Society who have not yet paid their subscriptions, please note to send the amount in as soon as possible this year.

BRANCH SOCIETIES.—The affiliation fees of the Branch Societies are now due and the amount with the revised list of members, i.e., the names of those who have paid their new subscriptions, should be sent in as soon as possible.

MEMBERSHIP.—The membership of this Society, that is those who are direct or full members entitled to write to the office for all information they may want (agriculturally) and use the office to the fullest in this respect, those entitled to attend our Half-Yearly General Meetings and who possess voting privileges, is not what it should be, considering the number of correspondents we have who are not even members of Branch Societies. The subscription to the Society is only 4/- per annum. Some of those keenly interested say it should be a guinea! Surely those who directly participate in the benefits of a central office and its organization should become members!

DISEASES OF PLANTS.—We hope to be able to publish the new Law on this subject together with the Rules, in our next JOURNAL. The subject was so important that a Special Meeting of the Board of Management was held to discuss the points of the Law carefully, and probably some useful revisions will be the result. We think it was unanimously felt that there should be no playing with Panama Disease of Bananas at least. When the Law is published with the Rules under the Law, we shall ask the Instructors to make it a subject of discussion at each of their Branch Meetings so that all the points may be understood.

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WAR GIFTS.—We are still sending some of these away, but at this time of the year we cannot send much fruit. We have shipped, however, by the S.S. "Chagres," which left on May 10th 37 boxes of mid-year Oranges from St. Ann, 45 boxes of Lemons and 15 boxes of grape-fruit from Manchester. Not many Lemons are raised in Jamaica, but in the St. Thomas Ye Vale District and in Manchester a good many trees were planted some years ago and this cultivation could be made profitable if the trees were regulated so as to bring the fruit in during the summer in the United Kingdom and the United States. By Lemons we of course do not mean the Rough Lemons or Wild Lemons of the country, which is a useful fruit locally and which grows vigorously in the mountains; we mean what are usually called Italian Lemons which are fine skinned and very juicy. We have also sent a quantity of Preserves, chiefly Guava Jelly and Grapefruit Marmalade. We shall have an opportunity of sending more, and now that the Guava season is in, we shall be glad to hear from anyone who can provide a War Gift in the shape of Guava Jelly. We will send out a 10lb. tin free—or as many tins as anyone want.—to be filled. The organization of the War Office seems so complete that we are able also to ship individual Gifts to individual soldiers or sailors almost anywhere—even right into the trenches. Anyone, therefore, who has a relative or friend in the military or naval service can send a gift of Preserves. Those who are not in a position to make Preserves themselves can get them through us.

We have also been instrumental in shipping another kind of War Gift by the S.S. "Erymanthos", in a body of 10 young men fit and active for military service; these were all medically examined at Camp and passed for service.

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PRICE OF COCOA.—Mr. Cradwick writes:—"In George T. Benton's Market Report for March, Cocoa is quoted as follows:—Trinidad, 80/- to 87/- per cwt.; Grenada, 81/- to 87/6 per cwt.; Jamaica, 80/- to 86/- per cwt.; Guayaquil, 82/- to 89/- per cwt.

This is interesting in view of the statement recently made in the newspapers—that Jamaica cocoa could never fetch as high a price as Trinidad cocoa. 1/- per cwt. difference is getting near it at any rate, and reflects great credit on Jamaica curing, if the oil, as it is stated in the newspaper correspondence, is really not in the Jamaica cocoa."

* * * * *

We replied, that war time prices were no criterion; that at the present time when stocks are low in the United Kingdom almost any cocoa would pass muster, but when there is keen competition, that is a different story. The present enhanced price of cocoa is not

because of increased demand through increased consumption, or because of crops of cocoa being poor at the sources of production, but because of the interruption of over-seas trade through the scarcity of shipping facilities, so many ships having been taken over by the Admiralty for their own use. There is plenty of cocoa available, and whenever shipping is available, the price will probably drop to normal.

We do not think there is any doubt that a large quantity of Jamaica cocoa is picked in an unripe stage, is not well cured, and cannot have the same percentage of oil as cocoa from countries where greater care is taken. This does not apply to estate cocoa here; but a large percentage of our cocoa is grown by small settlers who sell in the pod to small speculators who have neither the knowledge nor the equipment to cure cocoa. This is a wasteful way of growers selling cocoa. Are we not, too, as a Society at present very much concerned over the buying of cocoa pods in an unripe state, and has not the subject been referred to our Branch Societies for discussion with a view to checking this evil by legislation? We do not think anyone growing or selling cocoa should judge of the prospects of the trade in the future by present prices.

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KILN DRYING OF CORN.—Mr. Cradwick also writes that Western St. Mary has reaped a large crop of corn and it is raining every day: how is it to be dried? Is not this an argument for the erection of central kilns to dry corn?

We replied that central kilns would be useful no doubt if the idea could be proved workable. However, corn can be dried without kilns. There are now bakers ovens established all along the roads in all parts of the Island not very far apart, and these can be utilized for drying corn without any particular expense. Men can take their corn along, put on the fire, keep up a moderate heat and dry their corn in an hour or two, paying a trifle for the use of the oven. If some corn gets a little charred that does not matter if it is to be fed to beasts: it would not of course do for cornmeal: and of course corn meant for seed cannot be artificially dried—it has to be cured in the cob and kept in the cob until planting time.

This subject of drying corn is worthy of more discussion.

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PRAEDIAL LARCENY.—At the last session of the Legislative Council, a Law was passed entitled "A Law to Amend Law 4 of 1909 entitled A Law in Aid of the Laws Relating to Praedial Larceny", which abolishes in connection with the Law dealing with "Authorized Persons" the distinction between Common Larceny and Praedial Larceny.

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FLIES.—We have often written of these plagues, and how to get rid of them by the use of "Formalin." There are many kinds of flies but the common house fly is the most obnoxious.

At this time of the year flies begin to appear in numbers, especially in kitchens where food is exposed in the course of preparation.

On page 499 of the JOURNAL for November 1911, we wrote of the usefulness, the exceeding great usefulness of the hand Syringe or Sprayer (to be got from the hardware firms advertising in this JOURNAL) and how we ourselves used it successfully in the constant fight kept up against insect pests of various kinds. We have published regular numbers since of the necessity of fighting the fly plague without relaxation.

A saucerful of milk and water and a little formalin added with a little sugar sprinkled round the edge, to attract the flies, kills hundreds of flies in an hour. The results from this method have to be watched for as only a few flies actually die in the milk, the table may hold a few score, but on the floor there will be hundreds.

One teaspoonful of formalin to the saucerful of sweetened milk and water is enough but it should be renewed every day.

Prevention is better than cure. The virulent diarrhoea which prevails in the last months in some districts among children, is probably the same as the summer diarrhoea which kills young children by the hundreds in the big cities of great Britain; and the cause, or one cause, is supposed to be the housefly which carries infection. Whether or not the common fly can and does carry infection of all sorts is hardly open to question; it haunts the most filthy spots, feeds on garbage and excretions and seeks change and refreshment by a trip to our milk and sugar and jam. So our readers should not shrug their shoulders and say it does not concern them, but make some individual effort to get rid of house flies. The formalin can be got from our advertisers, E. D. Kinhead & Co.

WOODASHES.—Those who keep stock have often found the necessity of giving their animals a "Condition Powder." Such a powder usually contain what are called stomachics, that is drugs which are simple vegetable product is like ginger, pepper, or some form of what are virulent poisons, but which used in very small quantities exercise a beneficial effect on the whole nervous system, like arsenic and strychnine; or compounds of many medicinal ingredients all calculated to secure specific effects on animals.

Trees need Condition powders too and every one has the best of all at hand and that is Woodashes. Bone meal is often fed to animals in small quantities because naturally it is rich in phosphates or bone making material; so woodashes being derived from trees, are the best medicine that a tree can get. Save every ounce of your woodashes and apply to your trees, but do not heap them close to the trunk; dig them in the surface soil lightly, right out at the end of the branches where the feeding roots are.

It will also be found that plain woodashes given to pigs in their food, exercise a most beneficial effect.

WAR GIFTS.—The Spalding Branch contributed 50 boxes of Oranges and Grape Fruit, and into each of the boxes put a note asking whoever got the fruit to acknowledge it. Mr. W. Hyde Macaulay, the President of the Branch, has received several acknowledgments with thanks for the fruit and stating that the fruit was opened in good condition.

PESTS.

RATS.—In this JOURNAL we have published a good many articles on rats telling of the loss they caused us in £ s. d., the danger they were to our well-being generally, and to be practical gave methods to get rid of them. And we wrote from practical experience as it has been our misfortune to have had to tackle badly infested places three times.

Periodically there are scares of various kinds, a hurry and a flurry over something, which lasts a month, and this has been the case in the battle with rats. Some few persons indeed keep up the fight against these pests year in and year out, especially estate proprietors where material damage is done by these pests, especially to sugar and cane and cocoa. But the vast majority do nothing at all; and even all that is being said and written now about the menace rats are to public health will not awaken many from their lethargy and get them to make some effort to do their part. Yet the efforts of a few are set at naught if all their neighbours do nothing. There should be no breeding places of rats allowed. Efforts should never be relaxed. Whenever there is a fresh scare of plague there is a sudden effort made by the civil authorities and others to get rid of rats; after the scare is over there is again little concern. But the way to get rid of these pests is for everybody, or if that cannot be looked for, all sensible people, to keep up the fight against rats, using various kinds of poisons and different kinds of traps and a variety of baits, taking care in the setting; training dogs and cats to be ratters, &c. We like to be practical and when we wrote before about various means for getting rid of rats, correspondents immediately asked us to send them a safe and effective exterminator and this we have been doing. It has been so successful that we continue stocking it. There may be many as good, may be some even better, but we do not know of any; at any rate, E.X.O. has been found fairly effective.

WAR GIFTS.

We published in December and in March JOURNALS, lists of the War Gifts we had sent in the shape of fruit, preserves, etc., together with some acknowledgements we had received from the various Military Hospitals throughout the United Kingdom.

The organizing and collecting of these War Gifts involves a good deal of labour, which, however, is cheerfully given. All the fruit, etc., is, of course, given free of charge, but the shocks and wrapping paper for the Oranges and Grape Fruit are paid for out of the Central War Fund. His Excellency the Governor has authorized supplies of War Gifts to be kept up continually, until further notice, and the Board of Management of this Society has given permission to the Secretary before, to organize these.

As will be seen in another paragraph of this JOURNAL we are shipping some mid-year oranges, but not many of these are available now. We shall be glad to hear from any districts where there is likely to be any good fruit coming on in June. We are also able to ship a considerable quantity of Preserves, principally Guava Jelly, but we wish more.

As will be seen from the acknowledgements below a good proportion of the last shipment went to the Fleet. It is very gratifying to see that, as a whole, the fruit arrived in good condition, though it was all carried on the decks of the steamers.

H.M.S. "Iron Duke".--

I am desired by Admiral Sir John Jellicoe to ask you to be good enough to convey to the West India Committee the very warm thanks of the officers and men of the Grand Fleet for their kindness in procuring 175 cases of grape fruit and oranges and 8 cases of various West Indian preserves for the Fleet.

The fruit is being distributed and will be very greatly appreciated by officers and men.

(Sgd.) V. H. T. WEEKES,
Secretary to the Commander-in-Chief.

H.M.S. "Ancon".—

I write to thank you on behalf of the officers and ship's company, of this ship, for the very welcome present of Jamaica oranges, just received. Gifts of this nature are particularly suitable at this time and are thoroughly appreciated.

(Sgd.) C. E. EVAN THOMAS, Lieut. R.N.

H.M.S. "Hecla," Fourth Destroyer Flotilla.—

I beg to acknowledge the receipt of fruit for which I thank you on behalf of H.M.S. "Hecla" and the destroyers of the Fourth Flotilla.

(Sgd.) H. W. PARKER, Captain.

H.M.S. "St. George".—

I am directed by the Admiral of Patrols to thank you for your very kind gifts to the men of H.M. Ships, destroyers and torpedo boats under his command, which have been very much appreciated by the recipients.

(Sgd.) W. DAVES,
Fleet Paymaster.

Shotley Barracks, Harwich.—

On behalf of the Senior Naval Officer I beg to thank you for the Grape Fruit and Oranges received here for the officers and men in the Fleet. I assure you it is very much appreciated.

(Sgd.) R. M. HARCOURT.

Royal Naval Hospital, South Queensferry.—

I beg to inform you that I received 3 boxes of Oranges and 1 box of Grape Fruit in good condition, which you kindly forwarded. I shall be glad if you express my thanks to the Jamaica Agricultural Society for their very nice gift, which will be greatly appreciated by the patients.

(Sgd.) V. WAGET JONES, Fleet Surgeon.

Admiral's Office, Rosyth.—

I am directed by the Admiral Commanding, Coast of Scotland, to acknowledge with many thanks the receipt of the following for distribution to the men of the Fleet which will be much appreciated:—

46 packages of fruit from the West India Committee.

These were distributed among the torpedo Boats and Destroyers attached to Grand Fleet.

(Sgd.) L. G. TIPPINGE, Captain.

H.M.S. "Fearless".—

A consignment of grape fruit and oranges has been received by me from the Admiral Commanding, Rosyth, for distribution to the officers and men of the First Destroyer Flotilla.

The officers and men of this Flotilla have experienced a large amount of sea time since the war commenced—mostly under unfavourable weather conditions—and a not too luxurious diet, and I can assure you I am only expressing the feelings of all of us when I tell you how very much your delightful gift was appreciated.

I should also like to convey to you personally our grateful thanks for the time and trouble which we know you must have expended in collecting and forwarding such a generous consignment.

(Sgd.) N. F. BLUNT,
Captain (D), First Flotilla.

H.M. Naval Base, Great Yarmouth.—

I beg to acknowledge the receipt of your letter dated 5th March in which you inform me that the gift of fruit was sent by the Jamaica Agricultural Society.

Will you be good enough to convey to these gentlemen my thanks on behalf of the crews of H.M. ships attached to this base, and assure them that their gift was very much appreciated by all hands.

(Sgd.) H. C. SNERBROOKE,
Commander,
Senior Naval Officer.

Naval Base, Lowestoft.—

I have received 5 cases of Grape Fruit and Oranges, for distribution, at this Base, and have been informed by the Secretary of the Vegetable Products Committee that the Jamaica Agricultural Society has been good enough to send these cases.

I shall be much obliged if you will thank all concerned and assure them that their gifts will be much appreciated by the officers and men in mine-sweeping vessels attached to this base.

(Sgd.) A. ALLISON,
Captain-in-Charge.

The Red Cross Hospital, The Green, Richmond.—

I am directed by the Commandant to thank you most gratefully for your kind gift of oranges and grape fruit to this hospital. The patients will greatly appreciate the fruit and will be very interested to hear that they come as a patriotic gift from the Jamaica Agricultural Society to the wounded soldiers.

(Sgd.) E. F. CHRISTIE,
Quartermaster, Surrey 4.

Clifton House Military Hospital, Shirley, Southampton.—

The most beautiful oranges arrived this morning in excellent condition and have already been very much appreciated by the Belgian wounded. With renewed thanks.

(Sgd.) M. BAXTER,
Matron.

Ottermead Hospital, Ottersham, Chertsey.—

Very many thanks for the lovely big box of oranges just received from you on behalf of the Jamaica Agricultural Society.

They are simply delicious and are being much enjoyed by all our patients who are most grateful for the kind thought which prompted the gift and which has, I am sure, added to their enjoyment of the fruit.

Personally, I had no idea before that Jamaica Oranges were so sweet and juicy and altogether satisfactory.

(Sgd.) Ida H. WOOD,
For the Matron.

The Grange Hospital, Red Cross, Chertsey.—

Please convey to the Jamaica Agricultural Society the warm thanks of the patients in this Hospital, and of myself, for the generous gift of oranges which has just reached us. I cannot say how much we all appreciate the treat they have provided for us, or how deeply we feel their thought and consideration for the soldiers of England.

Such thoughts help us to feel our brotherhood all over the world and to assure us that the country which is mother to us all cannot fail.

(Sgd.) DIANA M. H. RAIKES,
In charge of the Grange Hospital.

Coldhayes Relief Hospital, East Liss, Hampshire.—

Your magnificent present of fruit has just arrived, and I have again to thank you most heartily for so kindly remembering us.

The soldiers are thoroughly enjoying the fruit, and we are all very grateful to the Jamaica Agricultural Society for their generosity.

(Sgd.) M. HARRISON,
Sister-in-Charge.

"Rockwood," Red Cross Hospital, Torquay.—

Many thanks for the 2 boxes of oranges and grape fruit you have sent to the wounded in the Hospital.

Please convey to the Jamaica Agricultural Society our most grateful thanks for such a splendid gift. I took some round to the 38 patients this morning and they much enjoyed eating the fruit. The men much appreciate the kind thought.

We shall also acknowledge the gift in our weekly local paper.

(Sgd.) M. PITMAN.

Red Cross Hospital, The Barracks, Grantham.—

I wish to thank you most heartily for the beautiful case of oranges which was sent to our Hospital this week.

The fruit is most delicious and very much appreciated by our patients. Please thank the members of the Jamaica Agricultural Society most warmly for their kindness.

(Sgd.) MRS. V. M. PIM,
Commandant, No. 12 Lines.

Military Hospital, Lakenham, Norwich.—

I beg to acknowledge with many thanks the receipt of one box oranges and one box grape fruit for the patients in this Hospital. We have 100 wounded soldiers, all from the front. The last convoy arrived on the 11th (83). All the patients much appreciate the kind gift of fruit from the Jamaica Agricultural Society as well as the kind thought of the senders.

The Oranges were rather badly bruised but the grape fruit were in excellent condition. With very grateful thanks.

(Sgd.) E. A. DOWSE,
Matron, 2 A.T.M.N.S.

Bricket House Hospital, St. Albans, Hertfordshire.—

I beg to acknowledge the receipt of the case of oranges received on March 8th—the second one you have so kindly sent us from the Jamaica Agricultural Society—for our hospital of 40 beds.

Both cases of fruit have arrived in excellent condition and been very much enjoyed by the sick Territorials who much appreciate so acceptable a gift from our colonies, and are interested to know where the oranges come from.

(Sgd.) L. BOYCOTT.

The Red Cross Hospital, Forlows, Leek, Staffordshire.—

The officers of the Leek Red Cross Hospital wish me to thank you very much indeed, for the handsome present of the box of Oranges from the Jamaica Agricultural Society.

The fruit arrived quite safely and in good condition, and will be greatly appreciated by our patients, who are now suffering from frost-bite. Again thanking you.

(Sgd.) S. A. BREALEY,
Quartermaster, L.R.C.H.

Red Cross Hospital, Weinflect, Lincolnshire. —

We have just received a beautiful box of grape fruit; please give our most hearty thanks to the members of the Jamaica Agricultural Society for their very handsome gift which our soldiers and Belgians will very greatly appreciate.

The fruit was in splendid order, only 4 were bad in the case. With many, many thanks.

(Sgd.) EDITH PELHAM TINDALL,
Matron.

"Wallacefield" Convalescent Home, Croydon, Surrey.—

Will you please convey to the Jamaica Agricultural Society our most grateful thanks for the splendid box of grape fruit. It arrived in perfect condition and is being greatly enjoyed by the 26 men who are here. To some of them the tasting of the first one was a new experience but they all expressed the hope it would not be the last.

(Sgd.) ETHEL LINK,
Hon. Sec.

Oatlands Convalescent Home, Erin Lodge, Oatlands Park.—

We beg to acknowledge the safe receipt of a box of magnificent grape fruit sent through you from the Jamaica Agricultural Society.

Please accept our grateful thanks for the kind gift which is much appreciated. Any further kind gifts will be most acceptable especially gifts of oranges.

(Sgd.) H. H. LARNOCK,
Hon. Sec.

Royal Mineral Water Hospital, Bath.—

I write to acknowledge the safe receipt of one box of oranges and one box of grape fruit in good condition.

Will you kindly convey to the Jamaica Agricultural Society the cordial thanks of the Committee and assure the donors that their gift is greatly appreciated by the 130 wounded and rheumatic soldiers now in this hospital?

(Sgd.) T. KIRLEY,
Registrar.

Hemlington Sanatorium, Marton S.O., Yorkshire.—

We have now received 5 cases of oranges which you have so kindly sent for the use of the wounded soldiers.

At the Present time we have many serious cases of pneumonia, and if you could just see how these poor fellows enjoy the juice of the oranges, it would do your heart good.

I am sure they are all most grateful to the Jamaica Agricultural Society and they all fully appreciate their kindness.

(Sgd.) ROSINE M. WEBB,
Matron.

Indian Gift House, North Road, Brighton.—

On behalf of the S.M.O. General Hospitals for Indian Troops, the Ladies' Committee acknowledges, with thanks, the receipt of the kind gift of 10 boxes of Grape fruit and 10 boxes of oranges from the Jamaica Agricultural Society.

(Sgd.) G. A. BRAILEY,
Hon. Sec.

The St. John Ambulance Association, Emergency War Committee, Southampton.—

Lady Lane and the members of the Emergency War Committee, St. John A. A., thank you most sincerely for forwarding the two boxes of fruit from the Jamaica Agricultural Society. Will you please convey our thanks to them? The fruit will be much appreciated by our wounded soldiers.

(Sgd.) M. ALLEN,
pro V. VINCENT,
Hon. Sec.

Voluntary Aid Hospital, St. George's Hall, Willesden, Middlesex.—

Please forward to the Jamaica Agricultural Society our sincerest thanks for the case of oranges sent on their behalf.

The fruit is far better quality than we could possibly get for the men ourselves, and is thoroughly enjoyed by them.

(Sgd.) GRACE STEVENS,
Secretary.

Kent Nursing Institution, Tunbridge Wells.—

I am truly thankful to the Jamaica Agricultural Society for sending one box of oranges and one box of grape fruit for our wounded soldiers. The fruit is very fine and arrived in excellent condition for which please accept our best thanks and gratitude. Naturally the men will enjoy it and appreciate your generosity.

(Sgd.) A. E. MOTTRAM,
Matron.

Red Cross Hospital, Ickleton, Great Chesterford, Essex.—

The box of oranges has just arrived and they look most delicious. I hope you will tell the Jamaica Agricultural Society how very kind we think it is of them to send such a handsome present to the wounded here. The men are so touched at their kind thought of them and do so enjoy the oranges.

(Sgd.) GERTRUDE BOWEN,
Commandant,

The Miller General Hospital, Greenwich Rd., London, S.E.—

I beg to acknowledge with grateful thanks the receipt of the two boxes of oranges and grape fruit which you have so very kindly sent for our sick and wounded from the Jamaica Agricultural Society. Will you please thank the Society very much and say how much the fruit is enjoyed and also how much their kind thought in sending it is appreciated.

(Sgd.) HARRY A. BOHE,
Secretary.

Bevan Hospital, Sandgate, Kent.—

Very many thanks for the boxes of oranges and limes which arrived safely to-day.

Please convey our thanks to the Jamaica Agricultural Society. I wish they could hear the nice things which the soldiers say about their kindness in sending us such a lovely present.

(Sgd.) CICELY DALE,
Commandant V.A.D. Kent 36.

Red Cross V.A.D. Hospital, West Cults, Aberdeenshire.—

The Committee of the West Cults Hospital send most grateful thanks for the case of beautiful oranges which have just arrived. The Hospital is greatly indebted to the Jamaica Agricultural Society for their kind gift to the soldiers who greatly enjoy the fruit.

(Sgd.) E. M. TERRY,
Quartermaster.

Indian Military Depot, Milford-on-Sea, Hampshire.—

Reference to your No. 385 of 8th March. The 10 boxes of oranges and the 10 boxes of grapefruit have arrived safely.

The Indians very much appreciate the generous present of the Jamaica Agricultural Society. The fruit arrived in excellent condition.

I hope you will give the warmest thanks of the men and myself to the Jamaica Agricultural Society for this splendid gift.

(Sgd.) R. W. NELSON,
Lt.-Col.

BRANCH NOTES.

RURAL HILL (Portland).—Our annual general meeting was held in the School-room on the 30th March, 1915, when there were present Rev. S. I. Moodie, President, and Secretary; also nineteen other members. Arising out of minutes *re* Cocoa Competition for 1916; also a debate on 'An evening spent at the J.A.S. or an evening at the shop corner, which is more profitable?' After the discussion, the J.A.S. was carried. Five new members were enrolled: S. N. Mitchell, Teacher; E. Miller, Joseph Pantom. Mrs. C. Berry, Mrs. Aug. Sutton, all Long Bay P.O. Received one shilling for grindstone, three shillings for subscription. Mr. Kelly gave us a song entitled *Far Away*; a recitation by Mr. Maxy Richards. All these are our efforts to make the meeting lively, so that members may attend, and bring in others beside, and we find that from the start of this debate our meetings are lively, well attended by both members and visitors. Mr. W. Goffe promised to speak on Tobacco at the next meeting; and our debate will be 'Home training for children and School training, which is more profitable?' Meeting adjourned for last Tuesday in April, 1915.

A. A. FLEETWOOD, Secretary.

CAMBRIDGE-WOODFORD (St. Andrew).—A meeting was held on the 1st April, in the schoolroom at Woodford. The President, Rev. S. T. A. Jones, A. P. Hanson, the Secretary, thirteen other members, and several visitors, were present. There was a lengthy discussion on the rapid spread of the "black blight" disease, and of the havoc it is doing to citrus trees. During the discussion a vial containing some of the insects, collected by the Secretary, was passed round to each person and examined. The Instructor spoke at length on the disease, advised that it be attended to at once, recommended the purchasing of a spraying pump, and gave instructions

on the compounding of the necessary emulsions. The members agreed to subscribe the required amount for a pump. The treasurer's account and the Secretary's annual report were presented and adopted. The election of officers for the ensuing year resulted as follows: Rev. S. T. A. Jones, President; Messrs. A. Linton, J.P., and R. Nelson, Vice-Presidents; Mr. R. A. Clare Secretary and Treasurer. At the request of the Instructor, Mrs. Claypole was admitted a member.

R. A. CLARE, Secretary.

CHRISTIANA (Manchester).—The first regular meeting of this Branch for the year 1915-16 was held in the Court House. Present: The Chairman, two Vice-Chairmen, Secretary and 18 other gentlemen, and Thos. Powell, Esq., Instructor. Report of "War Fund" was adopted. Correspondence from Parent Society was read and discussed. Two Authorized Persons were present and gave a report of work done. The President addressed the Members on the importance of manuring land for ginger cultivation. It was decided to offer three prizes of £5, £3, and £2 respectively for the best ginger grown under the conditions to be laid down. The Treasurer's report showed a balance of £2 3s. 10½d. to the credit of the Society. Discussion as to membership and interest in the Branch, took place. Several suggestions were made, but nothing definite arrived at. All the officers who served during the past year were re-elected. The Managing Committee with the addition of three new names remain the same. Meeting adjourned.

M. M. O'MEALLY, Secretary.

COOPER'S HILL (Portland).—The annual meeting was held on the first of April. There were present, Mr. D. S. Morris, first Vice-President, presiding; 13 members, the Secretary, and Mr. W. S. Broughton, visitor. The Secretary's report of the work of the Society during the past year was then presented and adopted. It showed satisfactory work being done. The Secretary was accorded a hearty vote of thanks. The Treasurer next presented his report. This was also adopted and the Treasurer received the thanks of members. The retiring Vice-President then gave an address. He congratulated the Society on its achievements and advised the members to aim at co-operating more for the common good of the Society and district. He was given a hearty vote of thanks. The election of officers next followed. This resulted as follows:—The Rev. S. M. Binger, President; Messrs. Joshua Micklejohn and D. S. Morris, 1st and 2nd Vice-Presidents respectively; Mr. J. B. King, Treasurer; Mr. J. E. Brooks, Secretary, and Messrs. Amson Bradshaw and R. J. Valentine, Assistant Secretaries. The date of the regular monthly meeting was changed from the 1st Thursday to the 4th Thursday of the month in order to have the President more often at the meetings. The Secretary suggested that the members form themselves into Co-operative Bodies of Workers to do work in their fields. A committee was formed to make plans for it and to report at the next meeting. Mr. King said he was no longer able to keep the goat. It was decided that the Secretary keep him. The meeting adjourned.

J. E. BROOKS, Secretary.

STURGE TOWN (St. Anns).—On April 3rd, the regular meeting was held in the Schoolroom, presided over by Mr. T. J. Lawrence. It was decided to procure a grindstone for the use of the members of the Society in June. The debate was left over till next month. Our Authorized Persons received their badges and handcuffs. Mr. Rennie paid us a surprise visit on the 31st March, and he did a little work in the School garden, which was shewn to the members on the 3rd April. It is gratifying to note how the members are making good use of their books. Many minor matters of local interest were discussed and then the meeting terminated with the National Anthem.

S. J. PALMER, Secretary.

ALBANY (St. Mary).—The regular monthly meeting was held at Friendship on the 7th April, with the Hon. R. P. Simmonds presiding. There were twenty-two members present. Reports were presented by three Authorized Persons one being absent. It was decided that at the next meeting a debate on the subject "Which is more payable, ten acres of coconuts or bananas, after cultivation for 20 years"? The Chairman next dealt with the question of the sale of cocoa pods indicating on what lines the subject should be viewed. The matter however having been discussed at previous meetings and resolutions sent up, the Secretary was asked to look up notes for the next meeting.

C. L. DRYDEN, Secretary.

WARSOP (Trelawny).—Annual meeting of this Branch was held on the evening of the 7th April, 1915, at the usual place. Present: Rev. E. B. Heighington, Chairman, E. Arnett, Esq., the Secretary and over twenty other members. On the annual report being given by the Secretary, election of officers for the current year was proceeded with. Result:—The Chairman, the Secretary, and first V. P. re-elected; Mr. Chas. Wright was elected second V. P. The Instructor gave valuable hints by which the meetings of the Society can be made more interesting. Eighteen members paid in their dues.

U. K. WALTERS, Secretary.

MORAVIA (Manchester).—The regular meeting was held on the 7th April, 1915. Members were urged to secure Eucalyptus plants. The resignation of the Rev. W. Z. Getfield as President and member of the Society in consequence of his removal to other fields of labour. Resolution embodying his invaluable service to the Society, the district and its surroundings. Election of officers for 1915:—President, Mr. L. R. Flemming; Vice-Presidents, Messrs. Geo. T. McNamee and Hezekiah Richards; Secretary and Treasurer, Mr. J. N. Simpson. Addresses by the Agricultural Instructor, Mr. Schleifer: (a) Attend the meetings of the Society regularly; (b) study the Agricultural JOURNALS; (c) watch for any signs of diseases especially among bananas and report to the proper authority; (d) grow cocoa; (e) how to treat choked animals. Vote of thanks and the National Anthem terminated the meeting.

J. N. SIMPSON, Secretary.

MARLBOROUGH (St. Mary).—The monthly meeting was held on Thursday, 8th April, at 5 p.m. There were present: The President, 2 Vice-Presidents, the Secretary, and 14 other members. Read letter from Parent Society dealing with the Produce Protection Law, the publishing of Branch Notes, and the promptness of taking JOURNALS from the Post Office. After some discussion the following were agreed to: (1) That the buying of cocoa in pods be stopped entirely, as the buying of green cocoapods is very common. (2) That the Secretary send only concise reports of meetings to the General Secretary, in order to ensure their publication. (3) That there being no serious neglect on the part of members of the Branch in taking their JOURNALS from the P.O., the General Secretary be so informed. Messrs. Pedley and McFarlane gave reports of their work as Authorized Persons for the previous month. The Secretary promised to give a paper on Pig Rearing at the next meeting.

R. SAML FINLAYSON, Secretary.

COMFORT HALL (Manchester).—On the 8th instant, this Branch had its quarterly meeting. There were present: The President, Thos. J. Powell (Instructor), ten members, the Secretary, and Messrs. Hibbert and Prayag among the visitors. Mr. French became a member, and Mr. T. A. Morris of Wear School, was nominated and elected a member. The Secretary read the annual report which showed the Society's work for the year under review to have progressed. Its membership stands at 54. All its regular meetings fairly attended, and the lectures and discussions have always proved beneficial. Though more could have been accomplished yet the members felt that the year just closed has recorded more to the good of the Branch than any other past year. The next business was the election of officers, and all the outgoing officers were re-elected. Mr. R. A. Munroe was re-elected Secretary and also Treasurer. The Instructor gave a very instructive lecture on the cultivation of cocoa. He dealt with situation, soil, planting out and after cultivation. He gave it as his opinion that it would be a profitable crop to grow in the district and in order to encourage a start he would write to the Montpelier Nursing to find out if he could get seedlings to distribute to the members. Notices were given that at next meeting the Branch should consider some ways and bring to effect the suggestions in the paper on Thrift by Mr. Jacobs. *Re* the suggested local Show at the next meeting the committee will begin to make arrangements as to what should be done and how. Reports were asked for from the Authorized Persons of the Branch but the persons were not present and neither sent in any report. It was agreed on that in future these persons must either be present to report what they have done or send a report in writing to the Secretary.

A. A. MUNROE, Secretary.

MALDON (St. James.)—At the annual meeting held 9th April, there were present: Rev. R. G. Chambers (in the Chair), eleven other members, the Secretary and one visitor. The yearly report was read and adopted. A vote of thanks having been accorded the recording Secretary for his valuable services to the Society, the items on the report was commented on. The smallness of attendance at monthly meetings was very prominent; three meetings fell through, and the average attendance was 31 per cent. This was thought to be consequent on the apparently inconsistent arrangements for meetings. The explanation given by the President, however, showed that the fault was somewhat due to negligence of the corresponding Secretary. Members would be informed only on their way to meetings, that there was none. One member even testified how he came and sat down to an officer's meeting. It is to be hoped that the office of corresponding Secretary will prove itself more useful in the future. The Treasurer's report was next given and adopted. Then came the election of officers for the ensuing year: Rev. R. G. Chambers, President; Mr. J. Morrison, 1st. Vice-President; Mr. A. Jarrett, 2nd Vice-President; Mr. J. W. Chisholm, Recording Secretary, and Mr. S. C. Reid, Corresponding Secretary. The monthly meeting was fixed for the 1st Friday. The distribution of JOURNALS came in for much discussion, and it was agreed that a small amount be provided to aid, and that the teachers of this School around be asked to circulate among the scholars. Mr. W. A. Wright, an authorized person, gave his report. As the result of a discussion on roads Nos. 7, 11 and 28, the President decided to send a personal letter to the Superintendent. Meeting was adjourned until the 7th May.

J. T. MORRISON, Secretary.

DARLSTON (Westmoreland.)—The monthly meeting was held in the St. John's Schoolroom on Friday, 9th April, 1915. Present: Messrs. J. W. Mennell, R. C. Somerville (Instructor) six members, one visitor, and the Secretary. The President pointed out that there was a misunderstanding in the advertisement of the lecture of the microbiologist at Savanna-la-Mar, which was really on Coconuts and not on Bananas. The Instructor said the meeting was largely attended by representative planters and was very interesting. There was a discussion on rat-killing, and Mr. Goodin of New Roads said that he was glad to hear the desire to exterminate rats made here, as they were trying to do the same at New Road. The Instructor moved the following resolution which was carried: "That hearing with much pleasure that the New Road Branch was starting a rat killing campaign using E.X.O. Be it resolved: That this Branch start a vigorous similar campaign using Blue paste in the manner described by Mr. Percy Brown, and that reports from both branches be exchanged on the results." Mr. Somerville said that he found on investigation that there were a few JOURNALS in connection with this Branch lying at the Post Office, but he was surprised to find that they belonged to three dead members; he would ask the Secretary to report the death of members or their removal from the district, to the General Secretary. In reply to the above, the Secretary said respecting the JOURNALS of the three dead members their relatives should claim their JOURNALS till the end of the financial year for they have been paid for. Mr. Goodin said he thought the JOURNALS should be published only half-yearly. He gave reasons for this. Among them he said that it was a waste of public money. He knew that he would lose his point if the Instructors and the General Secretary were financially interested. Mr. Somerville said such an utterance was very unworthy of a man of Mr. Goodin's intelligence. If he found that JOURNALS were kept in his district P.O., it pointed not to the worthlessness of the JOURNAL, but to the low standard of intelligence of the people in that Branch. The JOURNAL was becoming increasingly useful. It did not matter to him personally, if the JOURNAL was not published, but he would be very sorry for the people, as he was convinced in his own mind that the JOURNAL was doing more in disseminating agricultural knowledge in all its Branches than any other channel of information. The President in summing up said, he should be very sorry to see the publication of the JOURNAL curtailed. On being put to the meeting, Mr. Goodin's motion was lost. Addresses. As promised at last meeting. Mr. McKenzie said he was proud to be a member of the Society. He was very prejudiced at first to the Branch; however, like many others, he did not understand it, but the present Instructor had persuaded him;

had even proposed him behind his back and now he was very grateful. Since his joining he had been greatly benefitted. He brought a very large yam and a parcel of Irish potatoes. He had produced these by using manure, and he now told the meeting that he followed the lessons he had learnt there. He would ever attend the meetings and he for one will do all he can to follow what was taught there. He would ask every able bodied landowner to become members and active members of the Society. Mr. J. Williams gave some of his experiences in planting breadfruits. He had planted 100 plants and only caught 15. Mr. Brown said he found the soil responsible. The Instructor then gave a lecture on the planting of breadfruit. He spoke very interestingly in circumposing. Mr. Gooding moved a vote of thanks to Mr. McKenzie for his address. Meeting adjourned to Friday, 14th May, at the St. John's Schoolroom, at 9 a.m.

J. H. HEADLEY, Secretary.

PORUS BRANCH (Manchester).—The above held its annual meeting in the Church of England Schoolroom on Monday, April 12th, 1915. Members present: S. A. Hendricks, Esq., (President), the Secretary, the Assistant Secretary and nine others. J. R. Ellis (Authorized Person) gave a report of his work done. It was moved and agreed that those Authorized Persons that were not present be written to, asking them to attend at the next meeting. The Secretary's annual report was read. "In reviewing the business of this Branch for the past financial year ending March 31st, 1915, I have to report that the membership has been increased to that of last year. Ten meetings were held at some of these meetings the attendance were not very encouraging, yet we should not be discouraged at this. At each of the meetings above, business of some practical nature was transacted, the financial position of the Branch for the year ending 1914-15 is good. Mr. Thomas Powell has given regular visits during the year, and at each visit gave very instructive lectures. This Society is greatly indebted for the invaluable services rendered by the President, S. A. Hendricks, Esq., J.P., M.P.B. He is always punctual and sincere in his efforts, and he takes great interest in the agricultural welfare of the district, and members should come forward and show their appreciation. Also the V.P., Rev. and Hon. W. B. Esson, M.L.C., Rev. J. N. Somerville, J.P., J. A. Ogilvie, Esq., J.P., should be congratulated for their interest shown from time to time. The members who have been making their appearance at the meetings are also to be congratulated for their untiring efforts, and I sincerely hope that this year will be more flourishing both in membership and attendance. The Treasurer also gave his report which was adopted and agreed to. Correspondence from Mr. John Barclay re the new financial year and Branch Notes were read. The enrollment of members for the year 1915-16 next took place. Officers to serve for 1915-16 were elected as follows:—S. A. Hendricks, Esq. (President); Vice-Presidents, Hon. and Rev. W. B. Esson, Rev. J. N. Somerville, J.P., J. A. Ogilvie, Esq., J.P. Secretary, A. S. Rose, Assistant Secretary, C. Rowland. A vote of thanks was moved to the officers for their past year's services. The President replied on behalf of the others. The President will give a lecture on 'Bean Culture' at the next meeting; he also promise to give a pint of Bean (English) for distribution to the members.

C. ROWLAND, Asst. Secretary.

SOUTHFIELD (St. Elizabeth).—The regular monthly meeting came off on the 16th April, 1915, and presided over by Rev. W. H. Cope. The Treasurer's report and the Annual Report were read and adopted. The Chairman impressed on the members to attend the meetings regularly. General election of Officers:—President, Rev. H. W. Cope; Vice-Presidents, Rev. A. M. Smith and Messrs. L. C. Hibbert and L. D. Binns; Secretary and Treasurer, Mr. J. J. Miller. 14 new members were enrolled. Mr. H. W. Lynch was present and gave a very impressive address on Co-operation, and was accorded a hearty vote of thanks. The Chairman supported the address by referring to New Zealand which is being enriched by co-operation. The Instructor gave a short address encouraging the members to hopefulness. They should put forth greater efforts than usual in the way of cultivation so as to meet the hardships incidental with the war. Every member was asked to take an active part in the meetings. The meeting then adjourned after an enjoyable evening was spent.

J. J. MILLER, Secretary.

MT. REGALE (St. Mary.)—The monthly meeting was held on the 16th April. The following were present:—Mr. C. A. Robinson, ten other members, and the Secretary. Read letter from Mr. Barclay giving a number of reasons why Mr. Cradwick could not attend meetings of the Branch since July, 1914; also letter from same source asking the opinion of the Branch *re* the purchasing of cocoa. This Branch is unanimous in opinion that the only solution of the problem is in the prohibition of the sale of cocoa pods. The sale of cocoa pods has reached a demoralizing point and should be stopped. The election of officers resulted in the re-election of all officers.

B. THOS. ATKINSON, Secretary.

BRANDON HILL (St. Mary.)—At a meeting held in the Government Schoolroom on the 17th April, the following members were present:—Messrs. Alex. Allen, President; ten other members and the Secretary. The Secretary gave a general review of the work of the Society during the past year; there are forty-two members on the roll. Seven meetings of the branch were held and well attended. Many resolutions were passed, one of which was highly appreciated at the Half-Yearly General Meeting, held in January. A letter was read from the Parent Society reminding the Branch that the affiliation fee to the Parent Society is due. This, with the list of members, must be sent in at an early date.

CHAS. E. KELLY, Secretary.

LOWER ST. DAVID'S (St. Thomas.)—On the 17th April, a special meeting was held at the usual place. There were present: Rev. J. A. Edwards, President; Authorized Persons, and sixteen members in all. This was the first meeting since the beginning of the financial year, and officers to serve for 1915 to 1916 were elected. The Secretary who has been serving the Branch since 1913, was re-elected unopposed, and Mr. R. A. Baker, was unanimously elected Assistant Secretary. Rev. J. A. Edwards was elected President; J. G. Barrant was elected Treasurer. It was unanimously agreed to, that Messrs. J. G. Barrant and A. T. Bogle, remain first and second Vice-Presidents, respectively, as hitherto. An interesting discussion arose with regard to a cular from General Secretary *re* sale of Cocoa (pods especially) under the existing "Produce Protection Law." The Secretary was directed to write to the General Secretary asking him to supply, if possible, a copy of the Law before the next meeting.

T. E. CLARKE, Secretary.

LETHE (St. James.)—The regular monthly meeting was held in the Lethe Wesleyan Schoolroom on the 17th April. There were present: Messrs. A. A. Virtue, President, in the Chair; A. A. Gray, Secretary, and seventeen members, also J. Briscoe, Esq., (Instructor.) The President remarked on the paucity of attendance and impressed on the members the benefits to be derived by attending the meetings regularly and punctually. Communications from the Parent Society were read and discussed. The Instructor gave a very helpful and valuable address on the "Cultivation of Cocoa," defining the different varieties and recommending the planting of the Forastero, this being the most hardy and suitable for these parts. A lengthy discussion arose on the cultivation of the St. Vincent Yam, so as to enable the people to plant it throughout the year. Mr. C. Scott (snr.) gave a very interesting narrative of this yam based on matured experience. Several of the other members gave hints on the method of propagation. Several of the members complained of the heavy scum that comes B. 208, gave after being boiled to sugar: others gave satisfactory account of it. The differences of opinions were practically attributed to the soil. The President then thanked the Instructor for his helpful address and also the members for their presence. A very profitable and enjoyable meeting adjourned until May 15, at 3 p.m.

A. A. GRAY, Secretary.

CHESTERFIELD (St. Mary.)—The usual monthly meeting was held on the evening of the 20th April, with Mr. C. G. Hunt in the Chair, seventeen members, and two visitors attending. A letter from the Parochial Board dealing with Road No. 50 of the Annotto Bay division was dealt with, and the Secretary was instructed to press for the improvements asked for on this road. Several matters of importance from the Parent Society were submitted, and in regards to the one dealing with Produce Protection Law the following decisions were arrived at. (a) License to remain as it is, so that any one who can satisfy all that the law requires, may secure

his license and buy. (b) Sellers of cocoa to be licensed, and can sell only on the production of his license, but B may sell A's cocoa, upon the production of A's license. Several members spoke urging the necessity of keeping cultivation free from weeds, and cocoa well pruned and cared for. Members were urged to pay their subscription, and the Secretary was instructed to pay the affiliation fee as soon as possible

A. VIVIAN HAGUES, Secretary.

ST. GEORGE'S (Portland.)—The meeting of the Saint George's Branch Agricultural Society, was held in the Court Room on Saturday, 20th March. Present: Rev. W. A. Thompson, Vice-President, presiding; six members, the President of Belvidere Sub-Branch, and the Assistant Secretary. Correspondence from the Secretary of the Parent Society re "authorized persons" was dealt with. The Assistant Secretary was requested to supply the information. Letter from Mr. R. A. Burgess re gift to war fund, was ordered "tabled." A letter from the Secretary of the Belvidere sub-branch, was read with a report for the quarter. The Secretary was instructed to acknowledge same and to express the society's appreciation of the very fine report. Mr. R. P. Dunn brought to the notice of the meeting the actions of a man who was posing as an "authorized person", and enquired if he was. His name was not in the list, and the Secretary was instructed to write the man that he must desist. The failure of the Fairy Hill sub-branch to conform to the by-laws of this Branch, in sending its report, was discussed. The Assistant Secretary was instructed to write the sub-branch on the matter. The Treasurer presented a bill of 15/6 for printing which was agreed to be paid. Attention was drawn to the next quarterly meeting of the Society to be held on the 17th instant; members were asked to interest themselves in it. Mr. Cradwick will be present, and deliver an address. The meeting then adjourned.

T. N. WYNTER, Secretary.

CLAREMONT (St. Ann.)—The monthly meeting of the Claremont Agricultural Society was held on the 27th March. The Rev. A. W. Geddes, V.P., presided. The Secretary stated that every member was supplied with a prize list of the Show to be held on the 22nd April. The Secretary was instructed to ask those gentlemen who acted as Stewards of last year's show to do the same this year. The Secretary was instructed to get the permission of the Parochial Board for holding the Show in the Market Place. The Secretary was instructed to call a meeting of the Show Committee to arrange for the formal opening of the Show and to make final arrangements for same. The Secretary, for Mr. Hemming, moved that Rule No. 6 of the Society, be altered so that in future the Annual Meeting of the Society be held in April instead of in January. This was unanimously carried. Mr. Lewis Betton gave notice that at the next meeting of the Society he will move a resolution that the Agricultural Instructor use his influence in securing the manufacture of cleaner and better wet sugar by the small settlers. He stated that it is not infrequent for wet sugar to contain some amount of clay and sand. Mr. Edmund Knight is also down to move at the next meeting that the Society purchase out of its funds a Corn Mill for the use of the members residing in the Epworth district. The meeting then adjourned for the 4th Saturday in April.

T. P. ALEXANDER, Secretary.

WALDENSIA (Trelawny.)—The annual meeting was held on the 29th of April, when 13 members were present, the President in the Chair. The Annual Report was read. The meeting thanked the Secretary. Mr. Arnett (Instructor) for St. Ann, who was present, gave a few very kindly and encouraging remarks. At the election of officers to serve for the year, the Rev. A. G. Eccleston, Messrs. N. A. Livingstone, Thos. E. Chambers, and Wm. Gayle were returned, as President, Secretary, Vice-President and Treasurer respectively. Mr. Arnett was called upon to introduce Mr. Rennie to the meeting as Instructor for the district, and the latter in responding spoke in a few well chosen words. A hearty vote of thanks was accorded the officers for their past year of service, in which Mr. Arnett joined. Time for the next monthly meeting was fixed, and a large number of seasonable and useful hints on agricultural matters were given by Mr. Arnett, and the meeting was adjourned in the usual way.

N. A. LIVINGSTONE, Secretary.

WINDSOR FOREST (Portland).—The annual meeting was held at the Schoolroom on Monday, the 5th April, 1915, when they were present, John Panton, Esq., the President, in the Chair, 15 members and the Secretary. Matters arising from the minutes were discussed, after which the Secretary read his annual report, which was adopted. The keeper of tools also presented his report of the earning of tools for the months of February and March respectively; this report was also adopted. The finance, and matters arising from the minutes having gone through, the election of officers for the current year was next dealt with. It was proposed and agreed that all the officers be re-elected, also the Committee of Management. The affiliation fee for the current year was voted.

C. A. SMITH, Secretary.

GLENGOFFE (St. Catherine).—The monthly meeting was held on April 6th. Present were: Alexander Carey, Esq., J.P., (President); A. P. Hanson Esq., (Instructor); the Secretary, 28 other members and two visitors. Messrs. A. Ricketts and C. Francis were received as new members. Correspondence from Mr. Barclay was read. Mr. Bryan exhibited the bamboo trap recommended by Mr. Barclay. The trap was passed over to Mr. Gobay for perfection and experiment, who will report results at next meeting. Mr. Hanson recommended that the E.X.O. or rat exterminator recommended by Mr. Barclay in the letter be procured and given to one member for use; or that Mr. Barclay be asked to supply a small amount and the same be given to Mr. Gobay who will experiment and report at next meeting. The Secretary also read other correspondence from Mr. Barclay, and arising out of an important discussion on same, the following resolution was carried unanimously:—*Resolved:* "That we the members of the Glengoffe Branch hereby pledge ourselves not only to place on the market none but the best cured agricultural products, but also to influence others to adopt the same principle." The meeting was also in favour of responsible persons buying produce, but without irresponsible agents. The Treasurer's Report showed a balance in hand of £7 2s. 11½d.; also an increase of 9 members for the year. The Secretary's Report showed that on account of circumstances beyond our control, the Society's efforts to obtain the appointment of a D.M.O. for the district, and to hold an Agricultural Show in connection with the Branch were not consummate, but at last were successful in obtaining the appointment of a J.P. for the district. The Instructor's work was also highly appreciated, as well as the timely advices from the Secretary of the Parent Society, which have been of great benefit to this Branch. A vote of thanks to the President, the Vice-President, Treasurer and Secretary was moved and carried unanimously. The election of officers was then carried through as follows: President, Alexander Carey, Esq., J.P., re-elected; First V.P., Rev. T. M. Sherlock, re-elected; Second V.P., Rev. C. A. Spencer, elected; Secretary, T. Coote, Esq., re-elected; Assistant Secretary, Mr. J. R. Bryan, elected.; Reporting Secretary, Mr. J. R. Bryan, re-elected. A vote of thanks to Mr. Sherlock for the use of the room during the past year was moved and carried. Mr. Hanson then gave a very instructive lecture on "Trenching", for which he received the hearty thanks of the meeting. The meeting adjourned after singing the National Anthem. THOS. COOTE, Secretary.

MT. CHARLES (St. Andrew).—The Annual Meeting of this Branch was held on the 15th April, 1915. The President, Rev. C. B. Berry, Miss Berry, Mr. A. P. Hanson (Instructor), nine other members and the Secretary were present; Mr. Hubert Williams and Mr. Richard Hussey were elected new members. After thanking the officers for the work of the past year, they were all re-elected. The Instructor was thanked for his devotion to the work of the Society. He mentioned the fact that special attention is being given to the district, so the permanent crops should be improved. He spoke on the pruning and training of the cocoa trees, systematic and scientific cultivation. The Authorized Persons present reported work done. Several arrests have lately been made and some of the offenders punished. Correspondence from the General Secretary was read, and after thorough discussion, the meeting recommended that no Pod License be given for cocoa. This Society has always held that the license to buy pods is very injurious to the trade and facilitates theft.

W. R. SMELLIE, Secretary.

The Journal

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

VOL. XIX.

JUNE, 1915.

No. 5.

BOARD OF MANAGEMENT.

The usual monthly Meeting of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 11 North Parade, Kingston, on Thursday, the 20th May, 1915, at 11.40 a.m. Present: The Hons. P. C. Cork, C.M.G., Vice-President, presiding, L. J. Bertram, C.M.G., D. Campbell, R. P. Simmonds and S. S. Stedman; Messrs. Robt. Craig, A. W. Douet, H. Q. Levy, A. C. L. Martin, Adam Roxburgh, Conrad Watson, and the Secretary, Jno. Barclay. Sir John Pringle came in during the meeting.

Apologies for Absence.—Apologies for absence were submitted from the Hons. Geo. McGrath, J. R. Williams and Mr. E. W. Muirhead, who asked that the motion in his name *re* Banana Commission be postponed until the next Meeting, and Mr. Archd. Spooner.

Minutes of previous Meeting. The Minutes of the previous Meeting which had been printed and circulated, were submitted. The following revisions were made *re* Infectious Diseases of Plants Law on pages 161 and 162:—

(1) On page 161 *re* Mr. Craig's remarks, which should read—"he hoped that the Board would not recommend the Law in the form proposed, as its provisions were extremely drastic and would require to be very carefully administered," and

(2) On page 162, to read as follows: "Mr. McGrath and Mr. Graham supported Mr. Craig in his view, that it was inadvisable to declare Pod Rot and Canker of Cocoa to be Infectious Diseases under the Law"; and instead of "the proposed Law," the word "proposal."

The Minutes were then confirmed.

Minutes of Special Meeting.

The Minutes of the Special Meeting held on the 28th April, were read as follows, and confirmed:

A Special Meeting of the Board of Management of the Jamaica Agricultural Society was held on Wednesday, the 28th April, 1915, at 11.40 a.m., at the Office of the Society, 11 North Parade, Kingston. Present:—His Excellency Sir Wm. H. Manning, K.C.M.G., CB., (presiding), Hons. P. C. Cork, C.M.G., D. Campbell, H. H. Cousins, Director of Agriculture, R. P. Simmonds, S. S. Stedman and J. R. Williams; Messrs. Robert Craig, A. W. Douet, H. Q. Levy, Rev. W. T. Graham; the Hon. St. John Branch, Attorney General, K.C., by invitation and Secretary, Jno. Barclay.

The Secretary read the paragraph in the Minutes of the previous Meeting of the Board, calling a Special Meeting to deal especially with the matter contained in the following letter from the C.S.O., and also with the proposed Order to be made by His Excellency under Law 3 of 1915, "A Law to Prevent the Introduction and Spread of Plant Disease," and dealing with Panama Disease of Bananas:—

No. 4146-4915.

31st March, 1915.

"I am directed by the Governor to state for the information of the Agricultural Society, that the Director of Agriculture has recommended, for the consideration of His Excellency, that "Pod Rot" and "Canker" of Cacao shall be added to the list of Infectious Plant Diseases under Law 3 of 1915, and that rules should be made for the sanitary treatment of all Cacao pods after the beans have been shelled and of all diseased pods, as also for the excision and tarring of canker in affected trees.

2. I am to ask that the Committee of Management of the Society will be so good as to give the proposal of the Director of Agriculture their early consideration and favour His Excellency with their advice on the matter."

(Sgd.) F. L. PEARCE,

Actg. Asst. Colonial Secretary.

After discussion and on the suggestion of the Governor, it was agreed to deal only with the Order *re* Panama Disease of Bananas and leave over the matter of adding "Pod Rot" and "Canker" of Cacao to the list of Infectious Diseases of Plants until the next ordinary Board Meeting.

After consideration of each clause and the adoption of revisions, the Secretary was instructed to send a clean copy of the revisions suggested, to the Governor, the Director of Agriculture, and the Attorney General.

20th May, 1915.

(Sgd.) P. C. CORK,
Chairman.

Matters arising out of the Minutes.—

(a) *Banana Commission.*—The motion standing in Mr. Muirhead's name was postponed as requested by him.

(b) *Value Orange Oil.*—The Secretary said that Mr. Muirhead had asked at the previous Meeting how the values for the exports of Orange Oil for 1913 and 1914, as stated by the Collector General, were arrived at, and he (the Secretary) was instructed to write the Collector General on the subject. He now submitted reply as follows

No. 326-1830.

19th April, 1915.

"In reply to your letter, No. 238, dated the 16th instant, I have the honour to state that the endorsements made on their Bills of Lading in terms of the requirements of section 118 of Law 18 of 1877, by Shippers, constitute the source of information as to the quantities and values of Orange Oil exported."

(Sgd.) A. H. MILES,

Collector General.

(c) *Pod Rot and Canker.*—Letter from the C.S.O. asking for the opinion of the Board as to whether Pod Rot and Canker of Cacao should be added to the list of Infectious Plant Diseases under Law 3 of 1915, as published in the previous minutes, was at the request of His Excellency, who could not be present at the Meeting, held over for consideration at the next meeting. His Excellency wrote in a note to Mr. Craig that he thought the meeting was fixed for the previous week and he had made an engagement for the present day which could not be postponed; he suggested that as the matter of Pod Rot and Canker was not pressing, the subject might be discussed at the next Meeting.

Analysis of Banana Meal.—The Secretary said that a few months back he had been directed by the Board to send a sample of Banana Meal through the Government here to the Imperial Institute, London, for analysis and report. He now submitted the analysis and report as follows:—

(Copy.)

IMPERIAL INSTITUTE.

RESULTS OF THE EXAMINATION OF BANANA MEAL FROM JAMAICA.

No. 55937. Date 16 March, 1915.
Imperial Institute Letter No. 4714 dated 6th November, 1914, from the Secretary
Reference. of the Jamaica Agricultural Society, Kingston.
Number of mark, as Banana Meal, Weight 2 lbs.
weight of sample.
Description. The sample consisted of a finely ground meal of light sandy colour and possessing a rather pronounced aroma.

	Present sample.	Banana (1) orange.	Flour (2) grey.	Wheat Flour.	Maize meal.
<i>Results of examination expressed on material as received.</i>					
Moisture per cent.	12.0	9.8	11.1	11.9	11.1
Crude proteins per cent.	4.6	3.4	4.8	13.6	9.5
Consisting of:—					
True proteins, per cent.	2.3	2.4	3.5	—	—
Other nitrogenous substances per cent.	2.3	1.0	1.3	—	—
Fat, per cent.	0.6	0.3	0.4	1.3	6.2
Starch, &c., (by difference)	79.6	84.2	80.8	72.6	70.6
Fibre, per cent.	0.7	0.5	0.5	0.1	1.4
Ash per cent.	2.5	1.8	2.4	0.5	1.3
<i>Nutritive value.</i>					
Nutrient ratio	1.17 6	1.25	1.17	1.5 6	1 9
Food units	93	93	94	117	110

The ratio between the percentages of crude proteins and the sum of the percentage of starch and fat, the latter being first converted into its starch equivalent.

Commercial valuation and remarks. (The total obtained by adding the percentage of starch to 2.5 times the sum of the percentage of fats and crude proteins.) This sample of banana meal from Jamaica is generally similar in composition to specimens of banana flour which have been received at the Imperial Institute from other sources. The only noteworthy difference between the figures obtained for the present sample and those for the specimens of banana flour quoted in the above table is that the "crude proteins" in the Jamaica meal include an unusually large amount of "other nitrogenous substances" (probably amides) which are very much inferior to the "true proteins" in food value. The large percentage of amides present may be due to the degree of maturity of the fruits from which the meal was prepared. Compared with wheat flour or maize meal this banana meal contains a much smaller percentage of proteins, and its nutritive value is consequently much lower. Maize meal also contains much more fat than the banana meal. The percentage of mineral matter is however higher in the banana meal than in either wheat flour or maize meal.

It will be evident from these results that the banana meal will not compare in nutritive value with either wheat flour or maize meal, but nevertheless it should prove useful locally as a partial substitute for these products.

This was referred to the Special Banana Committee which had been dealing with the matter of the encouragement of the use of Banana Meal as a local food.

Law Relating to Praedial Larceny.—The Secretary submitted copy of the Law in Aid of the Laws Relating to Praedial Larceny passed by the Legislature which on the recommendation of the Society abolished the distinction between Praedial Larceny and Common Larceny—as regards Agricultural Products.

Appointment of Two Field Inspectors.—The following letter from the C.S.O. was submitted :—

No. 5545-5853.

29th April, 1915.

"With reference to the letter from this Office, Nos. 4658/4817, dated the 12th instant, and previous relative correspondence, I am directed to inform you that, under the powers conferred by section 7 of Law 3 of 1915, "The Protection from Disease (Plants) Law, 1915," the Governor has issued certificates of appointment to Mr. Stanley Scudamore and Mr. John Bancroft Sutherland to carry out the provisions of that Law and any Orders issued thereunder, and has issued the instruction that these officers should always carry their Certificates about with them."

(Sgd.) ROBT. JOHNSTONE,
Acting Colonial Secretary.

Fustic.—The Secretary said he had observed a paragraph in the W. I. Committee Circular and in "Tropical Life," which had been quoted in the Newspapers here, which stated that the Imperial Authorities had asked the Government of Jamaica to make purchases of fustic and that the Government here had offered to purchase from growers large supplies of fustic and carry these at Government cost to Kingston for shipment; he had received letters from members of the Society asking if this was so. He had no official information to this effect, so he had written the Colonial Secretary, and the following was the reply:—

No. 5921-6537.

6th May, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter of the 29th ultimo, and, in reply, to inform you that enquiries were being made by this Government on behalf of the Imperial Government as to what quantity of fustic was available for purchase and the price at which it was obtainable, but that the Government has not received instructions to purchase.

2. I am to add that the particulars were required for the information of prospective purchasers in England."

(Sgd.) ROBT. JOHNSTONE,
Acting Colonial Secretary.

The Chairman said that all that had been asked of the Government was whether supplies of fustic could be had here and to what extent, and particulars had been sent to the Home Government; supplies had been bought as usual through the merchants, and as large shipments were being made as could be carried.

Sugar.—The following letter from the C.S.O. was submitted:—

No. 6529-7143.

19th May, 1915.

"With reference to the correspondence ending with the letter from this office, Nos. 1220/1131/15, dated the 29th January last, I am directed by the Governor to transmit to you herewith, the accompanying copy of a letter from the Secretary of the West India Committee, with a copy of a resolution passed by the Executive of the Committee in February last, in connection with the possible expansion of the sugar industry of this colony, in which the Committee advocate the grant of a preference to British produced sugar for a definite period of ten years."

(Sgd.) ROBT. JOHNSTONE,
Acting Colonial Secretary.

(Copy)

From the Secretary of the
West India Committee, London;
To the Governor, Jamaica.

No. 970.

22nd April, 1915.

"Referring to our previous correspondence on the subject of the possibility of the expansion of the sugar industry in your colony, I have the honour to transmit herewith, for Your Excellency's information, a copy of a resolution adopted by the Executive of the West India Committee on February 11th.

"In this resolution, the Committee advocate the grant of a preference to British produced sugar for a definite period of ten years. They are of opinion that such a preference would not only be a material benefit to our sugar producing colonies, but would also render the consumers in this country ultimately independent of Germany and Austria, for their sugar supplies. In this connection, I may point out that of the total imports of sugar with the United Kingdom during 1913, amounting to 1,960,000 tons, 1,200,000 tons came from Germany and Austria."

(Sgd.) ALGERNON E. ASPINALL,
Secretary.

RESOLUTION ADOPTED BY THE EXECUTIVE OF THE WEST INDIA COMMITTEE ON
FEBRUARY 11TH, 1915.

"Whereas in the year prior to the outbreak of the present war, the United Kingdom was dependent on foreign countries for no less than 95 per cent. of the sugar supply, and whereas in the opinion of this Committee an adequate supply of sugar could be produced within the British Empire to meet the requirements of the Mother Country, be it resolved: "That it is desirable that British produced sugar should, for a period of not less than ten years, be accorded such preferential treatment as would suffice to encourage the development of both existing and potential sources of sugar supply within the Empire; and that His Majesty's Government be urged to take the necessary steps to bring this about."

The Chairman said that a letter from the West India Committee had been submitted to the Board asking their support to a resolution to be sent to the Imperial Government requesting the exemption of West India sugar from previous duty similar to the preference allowed in respect to sugar made from home grown beet; and after consideration, it was decided at the January meeting to reply that the time was inopportune to put forward any question that would hamper or incommode the Imperial Government at that time, but the matter would be considered again in six months' time.

It was resolved that as the six months would be up in June to consider both letters together at the next Meeting.

Diseases (Plants) Law, 1915.—Letter from the C.S.O. was submitted as follows:—

No. 6362-6279.

May 15th, 1915.

"I am directed by the Governor to inform you that His Excellency has made two Orders under section 4 of Law 3 of 1915, "The Protection from Disease (Plants) Law, 1915," with regard to the Bonnygate Disease of Bananas and the Bud Rot Disease of Coconuts, which together with a notice containing an explanatory description of what constitutes "infectious" and what "notifiable" diseases, have been published in a *Gazette Extraordinary*."

(Sgd.) ROBT. JOHNSTONE,
Actg. Colonial Secretary.

The Secretary submitted copies of the Orders re Diseases of Bananas and Bud Rot Disease of Coconuts, which had been sent by the Government, and which had been published in the *Gazette*, and said he would publish these in the JOURNAL for the information of members as it was important that this knowledge should be well known.

War Gifts.—The Secretary submitted the following letter from the C.S.O.:—

No. 5020-5547.

30th April, 1915.

"With reference to the letter from this office, Nos. 1781/2227, dated the 11th February last, I am directed by the Governor to inform you that a letter has been received from the Crown Agents for the Colonies reporting the arrival of the consignment of fruit, etc., given by the members of the Jamaica Agricultural Society for the use of wounded soldiers, which was shipped to England by the s.s. "Chagres," and stating that the West India Committee have informed them that the fruit was in excellent condition on arrival."

(Sgd.) G. M. WORTLEY,
Ag. Asst. Colonial Secretary.

The Secretary said he did not expect very good results from his last shipment of Oranges and Lemons per the S.S. "Chagres", as they had been sent in for shipment on the "Erymanthos" which had been delayed in arriving; and after seeing that ship and learning that she would be 3 weeks on the way back, he had shipped by the Elders & Fyffes steamer "Chagres." Meantime the fruit was rather mature. He would publish a list of the donors of the Fruit, Preserves, Cigarettes, etc., as usual in the JOURNAL.

The following letter from Hon. H. Cork was read:—

30th April, 1915.

"I am enclosing you a letter written to the President and members of your Board of Management, and ask your hearty co-operation in aid of a much needed want, that the poorest man in Jamaica can contribute towards."

(Sgd.) HENRY CORK.

Park Mount,
Port Antonio,
30th April, 1915.

To the President and Members of the
Board of Management of the
Jamaica Agricultural Society,
Kingston.

Gentlemen,

Will you be good enough to endeavour to collect through the members of your Society and Branch Societies, rough walking sticks?

There will be hundreds of convalescent soldiers in England who will thoroughly appreciate a sound substantial walking stick, and although we may send them home in the 'rough', I am satisfied from my knowledge of the class of men that the sticks will be given to, that they will amongst themselves, find the men to carve and dress up good substantial sticks.

Will you be good enough to use your influence with the shipping companies and the Government to endeavour to get whatever facilities we can?

In the meantime I am holding myself responsible for the shipment of 1,000 sticks per month for a period of 12 months.

I am starting out with a contribution of 100 sticks myself, which I propose to keep up monthly.

If we cannot send men and cannot find rifles for the firing line, we can do our little bit in helping those who unfortunately have been wounded and require assistance during the convalescent period.

(Sgd.) HENRY CORK.

The Secretary said that he had informed Mr. Cork that if permitted by the Board, he would be glad to receive all the walking sticks that were sent in.

The Board considered that it ought to be made sure whether the War Office would appreciate such a gift as walking sticks, as these could be had in the United Kingdom at a very cheap price, and they would be very bulky to transport by sea and rail. The Board also considered that only finished walking sticks should be sent, not necessarily polished, but with proper heads and of proper lengths.

The Secretary was instructed to write Mr. Cork and ask him if he had communicated, or if not, would he communicate with the

Colonial Secretary's Office to find out whether a gift of walking sticks would be considered useful.

Banana Figs.—The following letter was submitted:—

Gayle,

April 22nd, 1915.

"As you know since August our German Market has been shut down. This has placed us in the very difficult position of finding other markets for Banana Figs and Banana Flour at a time when shipping facilities are so uncertain that one can not do business where delivery must be specified for definite dates.

I hear from our London House that they have endeavoured to interest the Admiralty and War Office with the idea of utilizing the Products in the field and on board ship. So far they have been unable to get in touch with the proper department and write me to see if it would be possible to get His Excellency to use his influence with the Departments at Whitehall.

A very large quantity of dried apples, pears, apricots, figs and dates are being used at present. The bulk of these come from the U.S.A. The Banana Fig can largely take the place of all these goods of foreign origin, and from the point of view of food values is infinitely superior, not only when cooked, but when uncooked (or as taken from the cases or packets) it is ready for eating and is particularly palatable besides being a specific against scurvy and other similar affections. I feel sure that if His Excellency uses his influence in the right quarters a large business could be done, whereas an ordinary business man cannot get in touch with the heads of departments. The banana business (for fresh fruit) is very bad now-a-days, and if this outlet could be taken advantage of, it would go a long way towards easing the position in districts like Cave Valley which has a large quantity of excellent fruit, but being so far from a shipping point the cost of cartage to sell at present prices makes fruit growing unprofitable. Apart from this it would put more money in circulation and employment for people who at present have no work to do. Both our plants are shut down as the orders we had for England and for the French Hospitals are filled. Will you advise me in this?"

(Sgd.) J. W. PATTINSON.

P.S.—I enclose letter from the Under Secretary of State *re* freights, about which my firm in London wrote him.—J. W. P.

(Copy.)

Downing Street,

6th April, 1915.

"I am directed by Mr. Secretary Harcourt to acknowledge the receipt of your letter of the 25th March, relative to the lack of freight for produce from Jamaica.

2. You are no doubt aware that the efforts made to secure a direct subsidized service between this country and Jamaica at the time the Imperial Direct West India Mail Service came to an end were not successful; and, in present conditions, it is unlikely that the project could be revived with any better prospect of success."

(Sgd.) H. J. READ,

For the Under Secretary of State.

The Secretary said he had sent a copy of this letter to the Governor as President of the Society in case he might require to make some enquiry before the Meeting, and His Excellency had written him to the following effect:—

"In September of last year a hundred weight of Banana Figs was sent home to Great Britain, and a despatch was written to the Secretary of States asking whether the War Office would be able to utilise these figs for the food of the troops. A reply was received in October from the Secretary of States for the Colonies who wrote that my despatch had been referred to the Army Council, and that Banana Figs were not required for supply to the troops.

"Still, since you have managed to get a ton for shipment as a War Gift, this had better be carried out, and a letter should be sent both to the War Office and to the Admiralty, saying that a ton of Banana Figs is being shipped to England and that it is hoped that it may be found suitable for use in the Naval and Military Hospitals. I could forward this letter to the Secretary of State and ask that it might be sent to the Secretary of State for War and the Secretary of State for the Admiralty.

I can quite see the importance, if, possible, of creating a market, and I would do anything that I could to push the matter forward.

These letters were referred to the Special Banana Committee for any further attention required.

Authorized Persons.—The Quarterly Return of Arrests sent in by the Inspector General for quarter ending 31st March, 1915, was submitted. This showed no arrests in Kingston, St. Andrew and St. Thomas 6 in Portland, 17 in St. Mary, 1 in St. Ann, 3 in Trelawny, none in St. James, 1 in Hanover, 2 in Westmoreland, 1 in St. Elizabeth, 1 in Manchester, none in Clarendon, and 3 in St. Catherine.

Corn.—The Secretary said he had received resolutions on the corn question from Branches in Clarendon. They were all pretty much the same. He would read the one from the May Pen Branch, which had taken a practical interest in furthering the growing of corn in that parish:—

"Whereas the May Pen Branch of the Jamaica Agricultural Society is fully convinced that were suitable encouragement given by way of a more table market this Island is capable of producing all the corn required for its own use and with few exceptions the large consumers would take supplies of native corn in preference to any other were such supplies obtainable at convenience, and that the people naturally expect the Government to give preference to supplies of native grown produce. Be it resolved that the Jamaica Agricultural Society be asked:—

(1) To establish a depot for native corn somewhat on the lines as Arrowroot is now treated, where regular supplies could be obtained by private individuals as well as by the Government Institutions.

(2) To urge upon the Government that native grown corn be used in preference to any other by all Government Institutions.

(Sgd.) C. L. A. RENNALLS,
Secretary.

The Secretary said he might mention that the Agricultural Instructors had held a Conference when they were in Kingston attending the Instructors Course at Hope, and the corn question was discussed then. The Instructors in the largest corn growing parishes present, said there was no trouble in marketing more corn than was being produced; the Instructors for the parishes that had been taking up corn-growing more widely recently, were those who asked about markets. At the present time, two months after the corn was taken in it was difficult to get any quantity of native corn at from 4/- to 4/6 per bushel. He had pointed out that as Jamaica imported £50,000 worth of corn, it was clear there was a big market here, but the first essential was to produce a marketable corn, thoroughly matured in the field, and well dried to be sold at not more than 60 lbs. weight to the bushel, if meant to be stored, otherwise, neither the Government, nor the Society, nor kiln drying, nor any sort of cooperative project for marketing would be of any use. Corn weighing say 64 to 66 lbs. to the bushel, which was often supplied, would not keep, would heat in the bags, would get mouldy, and practically was not a marketable product. He had communicated with the Director of Public Works again, as he had done before with previous Directors, with pretty much the same result, and he had received the following letter:—

No. 806-2662.

15th May, 1915.

"In reply to your letter No. 622 of the 10th instant on the subject of the use of native corn by this Department, I beg to say I find that records in this office show that the use of this corn has been repeatedly tried during the last seventeen years and that on several occasions contracts have been entered into for its supply but the results have been invariably unsatisfactory, endless trouble being experienced in maintaining a regular supply of good quality, which usually resulted in the contractors asking to be relieved of their contracts after a few months.

2. As a food for stock, it appears (when ripe and properly cured) to have given quite as good results as the imported article.

3. At present practically all the corn used is American, the bulk of it being imported through the Government Agents and the remainder being supplied by local Merchants at the same price as that imported direct.

4. The arrangements for all supplies to the Outstations are made in this Office, but Superintendents are allowed to supplement by the purchase of local corn when obtainable.

5. The present requirements of the Department are approximately 850 bags or 1,670 bushels per month.

6. I shall be pleased to co-operate in the endeavour to substitute native corn for the imported, but past experience is not encouraging.

7. In my opinion, the only system likely to prove successful is for corn to be purchased at fixed prices by some central organization such as your Society which could undertake the selection, proper curing, or kiln drying if necessary, and storage.

8. If such arrangements could be made that a regular supply of properly cured corn could be relied upon, I should be glad to enter into an agreement to take a fixed quantity per month."

(Sgd.) J. H. W. PARK,
Director of Public Works.

The Secretary said he had communicated with merchants in town, as he had often done before, and they were all willing to take supplies of country corn, but they would require to know ahead what they could get and that it would be well cured.

Mr. Levy said that the great drawback to thoroughly drying corn in the field, was that large quantities were stolen.

Mr. Bertram drew attention to the benefits of growing Guinea Corn which was not subject to stealing and which was hardier than country corn and was quite as good a food.

The Chairman said the Society should do its utmost to encourage the growing of Guinea Corn in suitable districts. The co-operative marketing of corn was a project the Society could take up, and as had been pointed out, the first thing to secure was mature corn. He agreed that Guinea Corn was a crop that could replace country corn in dry districts; from analysis of the grain, it was proved to be as nutritious as country corn, and was much easier to grow.

After further discussion the Board came to the conclusion that while organization and co-operation through this Society would be useful, nothing could be done in the way of marketing corn for corn growers unless well matured corn, thoroughly cured, could be secured, and the Secretary was directed to point this out to the Instructors and the Branch Societies in corn growing districts.

Crown Lands.—Mr. Craig asked the Chairman if he could refer to this subject. Permission was given.

He said he would like to draw the attention of the Board to the Rules regarding Crown Lands as published by the Government of St. Lucia which appeared to him to be better and more practicable than ours. They were printed in the West India Bulletin, Volume 14, No. 4, page 267, and he would ask the Board to direct the Secretary to send a copy of these to the President (the Governor) through the C.S.O. for his information, and for the use of the Committee of the Legislative Council, who had the revisions of the proposed Rules here under consideration.

Cotton.—The Secretary said he had received the final returns for the Cotton shipped from the Experimental Plots. The Sea Island Cotton had sold at 1/1 per lb., and the Egyptian at 8d. per lb. The total proceeds had been £34 17s., less a reduction of £4 3s. 11d. for freight, etc. He would call attention to the high rate of freight and the other marketing expenses—£2 8s. 3d.

Competitions.—The Secretary submitted Report on the Special Competitions held in Manchester, which should have been judged before the end of March, but had been carried over to this financial year. In S. Manchester, owing to drought, the Competition had not been successful; one competitor, however, Mr. Haffenden, had put forth great effort on his coffee, and the Instructor for the district recommended that he should be awarded the 1st Prize. This was agreed to. The following is the Report:—

"I enclose the results in the special competitions. The parish was divided into four districts for the coffee and orange competitions; this was done to get the same conditions as much as possible. I regret to say that a good many of those that entered did nothing at all to improve their cultivations—others have done good work.

"The competition was for the greatest improvement in a cultivation during the six months previous,

"For the purpose of assisting in the judging, I made a maximum of 25 points for each. You will note that under some heads good work has been done, and others, in some instances nothing, and you will note in two of the districts only one competitor remained in. In the case of William Powell in the No. 1 district. I do not consider that the work done warrants a first prize, I think a second would do. The competitions have taken up a considerable amount of time.

"I have to thank Mr. Lewisham, of Ebenezer, and Mr. A. S. Rose, of Porus, both of whom gave up several days to assist me. I have also to thank you for the assistance given in the banana competition. I doubt if the results obtained in these special competitions have warranted the expenditure of time, labour and money although they were worth trying as a test; and I would much prefer the ordinary Small Holdings Competition."

(Sgd.) THOMAS POWELL.

THE AWARDS.

BANANA COMPETITION.

	Totals.	
Rev. C. A. Lindsay, Porus	64	1st
J. W. Haynes, Chantilly, Williamsfield P.O.	53½	2nd
W. I. Williams, " Walderston P.O. ..	42	3rd
John Foster, Pike, Coleyville P.O. ..	41	4th

COFFEE COMPETITION.

(District No. 1.)

W. Holness, Shirehampton, Maidstone P.O.	28	1st
D. G. McPherson, Knockpatrick, Mandeville	27	2nd
John Morrison, Lincoln, Mandeville ..	21½	3rd

(District No. 2.)

John Foster, Pike, Coleyville	25	1st
Percival McLeish, Comfort Hall	20	2nd
George Nash, Comfort Hall	19	3rd

(District No. 3.)

J. W. Haynes, Chantilly, Williamsfield ..	54	1st
U. K. Phillips, Blue Mountains, Williamsfield	38	2nd
S. Sinclair, Christiana	17	3rd

(District No.4.)

W. Morgan, Mt. Pleasant, Porus	47	1st
C. Bailey, Harmons, Porus	40	2nd
John Pusey, St. Toolies, Porus	35	3rd

South Manchester,

C. Maffondea Cross Keys.	1st
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ORANGE COMPETITION.

(District No. 1.)

No award.	..		1st
W. Powell, Hasty Good, Mile Gully	..	15	2nd

(District No. 2.)

John Foster, Pike, Coleyville	..	34½	1st
No second prize.			

(District No. 3.)

J. W. Haynes, Chantilly, Williamsfield P.O.	58	1st
U. K. Phillips, Williamsfield	47	2nd
W. D. Alien, Williamsfield	33	3rd

(District No. 4.)

D. Kelsea, Porus	57	1st
C. Bailey, Harmons, Porus	45	2nd
Thos. Pitter, Patrick Town, Newport	25	3rd

The Secretary submitted the awards in the School Garden Competitions. He stated that these would be published in the JOURNAL and a copy sent to the Director of Education.

Statement of Accounts.—Statement of Accounts itemized was submitted showing full details of Profit and Loss on Deposits, etc., and referred to the Office Committee.

Instructors.—The Instructors Reports and Itineraries were submitted and directed to be circulated to the Instructors Committee as usual.

New Members.—The following new members were elected:—

E. J. Meville, Balbao, C.Z.

Rev. Wm. Graham, Caledonia Crescent, Cross Roads.

Hector Josephs, Barrister, Kingston.

The Meeting adjourned until Thursday, the 17th June, 1915, at 11.40 a.m.

THE JOURNAL OF THE

THE COCONUT INDUSTRY.

(Adapted from long article on "The industrial Position of Copra, Coconut Oil, and Coconut Cake," in the Bulletin of the Imperial Institute, London.)

Large quantities of coconut oil are produced in India, Ceylon, the Pacific Islands, the Phillippine Islands and elsewhere, whilst the dried kernels of the coconut, known as copra, are largely exported to Europe, and the oil extracted by modern milling methods. Prior to the war the chief countries importing copra were Germany and France, but owing to the complete cessation of trade from British possessions to the former country, as well as to Austria-Hungary, large quantities of copra from Ceylon, India, the Federated Malay States, and other countries have become available for use elsewhere, and attention is being called to the magnitude of this trade and to the desirability of British merchants and manufacturers securing a larger proportion of copra for industrial purposes in the United Kingdom.

The quantities and values of the exports of copra from some of the more important producing countries are shown in the following table; the figures in each case are for the last year for which statistics are available:

	Year.	Quantity. cwt.	Value. £
<i>British Territories:</i>			
Ceylon	1913	1,117,292	1,397,284
India	1913-14	763,832	1,039,826
Federated Malay States	1913	185,753	211,043
Seychelles	1913	58,738	71,919
Tongan Islands Protectorate	1912	222,400	209,567
Fiji Islands	1913	158,585	176,741
Papua	1912-13	15,880	16,356
British Solomon Islands	1912-13	83,920	73,637
Gilbert and Ellice Islands Protectorate	1911	41,700	20,700
East Africa Protectorate	1912-13	31,283	31,956
Zanzibar	1913	—	216,842
Gold Coast	1913	12,589	14,291
Trinidad	1913	10,308	11,545
<i>Foreign Territories:</i>			
Phillippine Islands (U.S.A.)	1913	1,618,080	1,988,692
Java (Dutch)	1913	1,556,000	—
Sumatra (East Coast) (do)	1912	80,860	—
Celebes (do)	1913	580,340	—
Indo-China (French)	1912	157,074	95,783
New Caledonia do	1912	53,173	64,850
French Oceania do	1912	117,662	112,569
Samoa	1912	220,423	203,496
* Bismarck Archipelago, German Solomon Islands, and German New Guinea	1912	223,814	202,603
* East Carolines, Marshall Islands, and Nauru (German)	1912	94,940	82,820
* West Carolines, Pelew and Mariana Islands (German)	1912	21,706	15,091
German East Africa	1912	83,468	78,152
Portuguese East Africa	1911	78,220	48,066

* Since the war broke out these German colonies have been occupied by troops from Australia and New Guinea.

Part of the Samoan group belongs to the United States and part belonged to Germany previous to the war, but was occupied by troops from New Zealand.

The statistics of the distribution of the exports of copra from British possessions, show that in many cases a very large proportion of the trade was with Germany; in the case of Ceylon no less than three-quarters of the exports went to Germany in 1913, and in the case of India in 1912-13 as much as four-fifths.

In the West Indies, very little copra has hitherto been made owing to proximity to central markets for the dry nuts. But a little trade has been done of recent years. We give the exports as follows:—

Trinidad.

				1913.	
				<i>cwts.</i>	£
United Kingdom	..	..	..	7,979	8,936
Germany	..	..	..	1,637	1,834
United States	..	..	..	692	775
Total	..	..	..	10,308	11,545

Jamaica.

		1910.		1911.		1912.	
		<i>cwts.</i>	£	<i>cwts.</i>	£	<i>cwts.</i>	£
United Kingdom	..	286	294	199	263	408	610
Germany	..	—	—	—	—	4	5
United States	..	—	—	—	—	10	10
Total	..	286	294	199	263	422	625

British Guiana.

				1912-13.	
				<i>cwts.</i>	£
United Kingdom	..	..	..	1,143	1,101
British West Indies	..	..	..	1½	1½
Denmark	..	..	..	—	—
Germany	..	..	..	—	—
United States	..	..	..	4½	5
Total	..	..	..	1,149	1,107½

Small quantities of copra are also exported from some other British Possessions, the total exports in each case in 1912 being as follows:

		<i>cwts.</i>	£
Mauritius	..	167	86
Grenada	..	252	182
St. Lucia	..	69	68
British Honduras	..	18	8½

Figures for the total imports of copra to Germany are not available, but as Harburg near Hamburg is the chief centre of the German oil-seed crushing industry it is probable that the figures for the latter port represent nearly the total German imports.

Imports of Copra in 1913 to Hamburg and Austria-Hungary.

	Quantity, metric tons (2,204 lb.).
<i>Hamburg:</i>	
Imports from all sources	230,395
" " British Possessions	124,434
<i>Austria-Hungary:</i>	
Imports from all sources	33,604
" " British Possessions	29,177

The details of the imports from the British Empire are as follows:

Imports of Copra in 1913 to Hamburg and Austria-Hungary

	Hamburg metric tons (2,204 lb.)	Austria-Hungary. metric tons (2,204 lb.)
United Kingdom	225	—
British Central and South America	195	—
British Africa	not given	774
British East Indies	112,341	22,104
Australia	10,65	6,299
British South Sea Islands	1,020	
	<hr/> 124,434	<hr/> 29,177

These figures are not quite complete. Some imports from British West Africa reach Hamburg, but are not separately shown in the returns for that port. The imports from Australia to Austria-Hungary include 608 metric tons from British Australia, and 5,691 metric tons described merely as from Australia, which probably includes some from foreign possessions in the Pacific Ocean.

The quantity of British copra for which a new market must be found may therefore be taken as about 153,611 metric tons.

It seems likely that a considerable proportion of this can be taken by the United Kingdom. The copra imported into Germany and Austria-Hungary is used for the production of oil (coconut oil) and feeding-cake (coconut cake). Of the coconut oil expressed from copra in or near Hamburg in 1913, the quantity exported as coconut oil amounted to 40,966 metric tons, of which 30,236 metric tons was sent to the United Kingdom and 5,261 metric tons to Norway and Sweden, the next largest purchasers. Copra is already expressed for oil in the United Kingdom and coconut oil is made both in Ceylon and India. The oil now produced in Hamburg for the United Kingdom might be expressed in Ceylon or India and shipped direct, or the copra might be exported to the United Kingdom and treated here instead of in Hamburg.

The exports of coconut oil from Germany to the United Kingdom before the war are stated to have been largely the produce of a British-owned factory in Germany.

The Trade Returns for the United Kingdom show that in 1913 this country also imported about 18,600 metric tons of coconut oil from foreign countries other than Germany. The total imports of foreign coconut oil to the United Kingdom in 1913 therefore amounted to about 49,000 metric tons, corresponding to about 82,000 tons of copra.

It is moreover certain that from all these foreign countries which export coconut oil to the United Kingdom, and especially from Germany considerable quantities of coconut oil also reach this country in the form of margarine, vegetable butter, and prepared fats and foods of various kinds. No definite figures can be suggested for the amount received in this way.

It is clear from the foregoing data that considerably more than half of the British copra hitherto exported to Germany and Austria-Hungary might be taken by the United Kingdom for home use, either in the form of copra or coconut oil. Ceylon and India produce both copra and coconut oil, so that these countries could probably divert their supplies in either form to the United Kingdom. It is understood moreover that firms crushing copra in the United Kingdom are now extending their plant so that there is a good prospect of the British Market for copra being greatly enlarged.

In addition to the possibility of finding a market in the United Kingdom, there appears to be a considerable chance of the British Colonies and India securing a share of the French import trade in copra. In 1912 the total imports of copra into France were 153,506 metric tons. Of this 19,691 metric tons came from British Possessions, and 10,321 metric tons from French Colonies. Of the remainder 43,422 metric tons came from the Netherland East Indies and 72,964 metric tons from the Philippines. It ought to be possible for Ceylon, India, and the Federated Malay States to compete on favourable terms with the Netherland East Indies and the Philippines for this trade.

Apart from the United Kingdom and France the new markets available for British copra are small. In the case of the United States the imports of copra in 1913 amounted to 15,548 metric tons, of which 10,674 metric tons came from the Philippines, and the rest mainly from French, British, and German Possessions in the Pacific. The imports of coconut oil to the United States amounted in 1913 to 22,915 metric tons, of which about 18,000 metric tons came from Ceylon, India, the United Kingdom, and Australia, and the rest chiefly from France, Germany, and the Philippines.

In Holland it may be difficult to replace the imports from the Netherland East Indies by British copra and coconut oil, but there seems to be some possibility for the development of export to Denmark, Scandinavia, and Russia.

USES AND VALUE OF COPRA.

The copra imported to Europe and elsewhere is used as a source of oil (coconut oil) and feeding-cake (copra or coconut cake). The methods of preparing copra have been dealt with already in this BULLETIN in an article on the coconut and its commercial uses (1912, 10. 274), and it is proposed to deal now merely with its utilisation and value. The copra exported from the different countries varies somewhat in quality; the values per ton of the more important grades in London, Marseilles, and Hamburg are shown below:

				£	s.	d.
Malabar	..	..	..	..	26	2 6
Ceylon	..	..	..	..	25	10 0
Malay Straits	..	..	..	..	24	10 0
Manilla	..	..	..	..	23	12 6
Samoa	..	..	..	..	23	17 6

Coconut Oil.

As already mentioned, large quantities of coconut oil are prepared from the fresh kernels in Ceylon and India, and exported as oil. The United States took £657,502 value, the United Kingdom £307,326, Germany £8,493.

Nearly all the Indian oil is prepared in Madras, and particularly on the Malabar coast. The Cochin Oil produced in the latter region is on the whole more carefully prepared than Ceylon Oil, and consequently realises higher prices. The values of Cochin and Ceylon oils in London at the present time are £55 and £48 10s. per ton, respectively (February, 1915).

The quality of the oil prepared by expression from copra in Europe, the United States, and elsewhere depends largely on the quality of the copra used. Sun-dried copra yields an oil of paler colour than kiln-dried copra, whilst that obtained from imperfectly dried copra is of higher acidity and inferior quality. The current value of London-expressed oil is £40 5s. per ton (February 1915). The oil content depends on the thoroughness with which the copra has been dried. *Thus, sun-dried kernels contain about 50 per cent. of oil, kiln-dried kernels contain 63 to 65 per cent., and hot-air-dried copra up to as much as 74 per cent.* The ground copra is expressed twice at a temperature of 55 to 60 C., the yield of oil from average copra being about 62 to 63 per cent.

At the average European temperature coconut oil is a solid fat, varying in colour from white to yellowish, according to the quality of the copra and the method of preparation. The unrefined oil prepared from the best quality copra possesses the characteristic smell and taste of the fresh coconut, but that obtained from the lower grades of copra is often rancid and disagreeable in smell and taste. By suitable refining methods, however, an odourless and tasteless oil may be produced, and the refining of coconut oil for the production of edible fats is now an important industry.

Refined coconut oil is used in the preparation of solid edible fats such as margarine, vegetable butters, cooking fats, and chocolate fats, as well as in the manufacture of cakes, biscuits, sweetmeats, etc. In order to obtain a fat of firmer consistence and higher melting point, a certain proportion of the liquid constituents of the oil ("coconut olein") is removed by expression. The "coconut stearin" which is left is used for the purposes indicated above, when obtained from high-grade oil, while that obtained from the lower grades is used for candle manufacture.

(To be Continued.)

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MANURING FRUIT TREES.—It is usual to apply manure underneath fruit trees as far as their branches extend overhead, but this is not a correct system, writes an authority on the Continent. At an experimental station on the Rhine a cherry tree twenty-five years old was dug up and the roots were found to extend more than eleven yards. The roots of a plum tree three years old were quite two yards long. How extensive, then, must the roots of fully-grown tree be!

From this fact it is clear that the proper plan is to spread the manure, whether farmyard manure or artificial, in a wider circle, and in orchards, where the trees are close together, to distribute it over the whole surface. Only in this way is it certain that all the trees will get the benefit of the nourishment supplied to them.

The Dean of an Agricultural College, U.S.A., is quoted as saying that it would take us twenty years to put into practice the agricultural science we now have, even if we should stop further investigation immediately.

AUTHORIZED PERSONS.**I.—THE LAW RELATING TO AUTHORIZED PERSONS.**

The stealing of agricultural products from the field has been and is a form of crime very common in Jamaica. It is most demoralising both for the thief, if he finds he can steal with impunity, and for the cultivator who time after time finds his crop stolen from his field so that he is inclined to say: "What is the use of cultivating? Thieves take so much of my crops that it can't pay me to cultivate."

The chief crops to suffer are food crops, especially yams and corn, but of late years since the growing of cocoa became general in some districts and buyers have started to buy in the pod, the stealing of cocoa pods has become very common. They are so easy to pick, so easy to steal, and so easy to sell as the law at present stands.

Praedial Larceny was so common, and theft was so often done with impunity, that the Government passed a Law in 1909 throwing the burden of proving his innocence on the person suspected of being in unlawful possession of the agricultural produce set out in the Law, and giving the privilege to Agricultural Societies of nominating men with special authority to arrest people so suspected of being in unlawful possession of agricultural produce. These men are called "Authorized Persons."

The procedure is this:—Any Agricultural Society (and there are now 146 in the Island constituting the Jamaica Agricultural Society and its Branches) can nominate men of good character, preferably healthy and of good physique, for each district covered by the operations of the local Agricultural Society for appointment as "Authorized Persons." Their names, written in full, together with their districts and postal addresses, are sent to the Secretary of the Jamaica Agricultural Society. The latter sends these to the Inspector General of Police with a letter stating that the local Agricultural Society is in good standing. The Inspector General sends these names to the local police of the district to make enquiry as to whether the men nominated are considered fit and proper persons to hold the power of "Authorized Persons." If they are found to be suitable men they are appointed. A badge of authority is handed to them through the local police, and also a pair of handcuffs, and the Sergeant or Corporal of the nearest police station should give them copies of the Law, and explain the nature of the duties expected of "Authorized Persons."

The persons nominated by Agricultural Societies for appointment as "Authorized Persons" should preferably be members of an Agricultural Society, but this is not required under the Law; it is, however, a recommendation.

It should be made a point by Branch Societies nominating the Authorized Persons for these men to be asked to attend a meeting of the Branch when their appointments are made and have their duties explained to them.

The Authorized Persons should also attend the regular meetings of the Branch Society and report any cases, and it will then be easy to get the form for payment of services rendered filled up and signed by the President and Secretary; there will generally be some person present at the meeting who can guarantee that the services claimed to have been done were really performed. Clerks of Courts must

have sufficient proof that the work claimed to be done has been done, and such a Certificate will save the Authorized Persons and the Clerk of Court much trouble and perhaps annoyance.

An Agricultural Society nominates men for appointment as Authorized Persons, and if these men do not act properly, do not do any work, or are not satisfactory in the performance of their duty, the same Agricultural Society can recommend the withdrawal of an appointment giving reasons in support.

This recommendation should be sent to the Secretary of the Jamaica Agricultural Society, Kingston.

Naturally in the working of a new Law, quite a departure from the old Law dealing with Praedial Larceny, a good many difficult questions may arise.

This Law came into operation in November 1909, but it was two years before the local Agricultural Societies began to act freely on it. Since then so many difficulties have arisen in "Authorized Persons" not understanding what they may or may not do under the Law, that the Agricultural Society directed its Secretary to write a simple treatise on the subject with a view of explaining some points of the Law. This has not been very easy to make brief, and yet fully explain all the problems in connection with the working of this Law that have arisen. All I have attempted to do is to write a simple explanation of the Law to be put into the hands of Authorized Persons. Whatever further difficulties may be found, seeing that the Law has been for some years in force, and Authorized Persons have been for some time at work, should be reported to me at once.

II.—THE POWERS AND DUTIES OF AUTHORIZED PERSONS.

The Law creating the office of Authorized Persons and setting out his powers and duties is Law 4 of 1909 as amended in Schedule A of the Amended Law of 1915.

Schedule A of Law 4 of 1909 contains a list of articles of agricultural produce, and the Governor in Privy Council may at any time remove or add any article to this list by an Order to be published in the Jamaica Gazette. Now, the duties of an Authorized Person are only in respect of these articles of agricultural produce while they continue on the list; he has nothing to do with any article not on the list.

The Law gives the Authorized Person the power to arrest without a warrant in the following cases.

(1) Where he finds that a person *has been* in possession of any of the articles of agricultural produce, or

(2) Where he discovers him in the actual possession of any of the articles.

But that is not all. The Law says that the Authorized Person before he can arrest, must have *reasonable grounds* to suspect that the person has either stolen the agricultural produce, or has received it from someone else knowing that it was come by dishonestly. Any Authorized Person must therefore act like a reasonable thinking man before he arrests. He must decide if the circumstances of the case are such that he really believes or strongly suspects that the person with the agricultural produce has stolen it himself, or knew that the person from whom he got it either stole it or came by it dishonestly. If he has good grounds for this belief or suspicion it is his duty to arrest the person.

When an Authorized Person has made an arrest he must forthwith, that is immediately, take the prisoner, along with the agricultural produce, if possible, before either a Justice of the Peace or the Clerk of the Courts who will then hold an enquiry into the matter and will decide what further is to be done.

The effect of the change in the Law by Law 10 of 1915, which abolished the distinction between common larceny and praedial larceny, as regards agricultural products, is that an Authorized Person, so long as reasonable suspicion exists, can arrest for the possession of any of the articles of agricultural produce on the list attached herewith. It does not matter whether the product is fresh from the tree or not, or whether the arrested person got it from the tree or picked it up from the ground or took it from a barbecue. So long as he has had, or does have, in his possession any agricultural produce, and there is reasonable cause of suspicion, the Authorized Person can arrest him.

III.—SOME INSTANCES OF REASONABLE CAUSE FOR SUSPICION.

1. An Authorized Person is appointed for a district. He is presumed to know most persons residing in that district. Stealing of crops, say, of yams or cocoa pods is reported as being general. The Authorized Person meets a man—whom he knows owns no cocoa, who is not usually and is most unlikely to have become a buyer—with a load of cocoa pods presumably going to sell same. He can stop that man, show his badge of office and question him. If he has reasonable cause to believe or suspect that the man cannot honestly account for the possession of the cocoa pods, he can arrest him.

2. A man who has no yams growing, who does not buy any, yet is able to sell yams, can be watched and the moment he is found in possession of those, and fails to explain satisfactorily how he got them, he may be arrested, although he may not actually have been seen stealing them or coming from a "ground" with them.

3. Children who habitually sell cocoa pods, yet whose parents do not grow any or who on enquiry do not give them any to sell, may be arrested. This form of Praedial Larceny—the stealing of cocoa pods—is so common among children that drastic measures are necessary, such as arrest on the spot.

4. If a person is seen picking coconuts or taking away coconuts which are lying on the ground, and the Authorized Person has reasonable cause to suspect that the person is not the owner or is not employed by the owner, he can question the person, and if the explanation is not satisfactory, the Authorized Person can show his badge and arrest the suspected person forthwith.

IV.—PAYMENT OF AUTHORIZED PERSONS.

The Law says the Authorized Person must be paid for:

(a) Each day on which he makes an arrest or actually attempts to effect an arrest.

(b) For each day he attends Court or before a Magistrate on duty in connection with a case under the said Law.

(c) Or does such other services in connection with his duties under the Law as has occupied him a day or part of a day.

The Authorized Person must fill up and present a Certificate to the Clerk of the Courts (a form for which can be got from the local Clerk of the Courts) stating what services he has done, and all payments should be made by the Clerk of the Courts at the Court House wherever the case is tried or at the Courts Office if the case does not come for trial.

V.—CAUTIONS.

An Authorized Person is appointed for a district and should act only within that district as a general rule. It is not expected that he will go outside of his district to watch for dishonest and suspected people. But if an Authorized Person, when he happens to be outside his district, comes across a glaring case, and has no opportunity to communicate with a constable, a district constable, or an Authorized Person for that district, then he may arrest.

An Authorized Person should always put on his badge of office when he is about to, and before, he makes an arrest.

The powers and duties of an Authorized Person are set out in this pamphlet. He must bear in mind that his appointment gives him no powers or duties in connection with anything except what is specified in this particular Law. Except under this Law he is just an ordinary citizen and no more. He cannot arrest for house-breaking, or assault, or anything outside of agricultural produce.

COPY OF LAW.

Dealing with the Appointment of "Authorized Persons."

JAMAICA—LAW 4 OF 1909.

A Law in aid of the Laws relating to Praedial Larceny, 1909.

[31st March, 1909.]

Be it enacted by the Governor and Legislative Council of Jamaica as follows:—

1—Whenever any person, hereinafter called a suspected person, has been or is in possession of any of the articles of agricultural produce mentioned in Schedule A or of any other articles of agricultural produce which the Governor in Privy Council by order published in the *Jamaica Gazette* may at any time hereafter add to the said Schedule, under such circumstances as shall reasonably cause any officer, or sub-officer of Constabulary, constable, district constable, or person authorized, as hereinafter provided, to suspect that such article has been stolen, or has been received knowing the same to have been stolen, or has been in any other way dishonestly come by, it shall be lawful for any such officer, sub-officer, constable, district constable, or person authorized as aforesaid, to arrest such suspected person without a Warrant, and take him with such article or articles of agricultural produce forthwith before a Justice of the Peace, or Clerk of the Courts; Provided, always, that the Governor in Privy Council may, by order published in the *Jamaica Gazette*, remove from Schedule A hereto, any article therein mentioned, or added thereto by the Governor in Privy Council, and this Law shall not apply to any articles so removed.

2—The Jamaica Agricultural Society, and any local Agricultural Society duly constituted and affiliated to the same under the constitution and rules thereof, may, and the Board or Committee of Management of such Jamaica or local Agricultural Society may, at any ordinary or general business meeting nominate any person or persons to the Inspector General of Police to be authorized persons under this Law having authority to arrest and deal with suspected persons as provided in the preceding section. It shall be lawful for the Inspector General of Police on the nomination aforesaid and with the sanction of the Governor, to appoint the person or persons so nominated to be persons authorized under this Law, having authority to arrest and deal with suspected persons as provided in the preceding section.

Provided that lists of all such authorized persons shall, before their authority shall commence, be published in the *Jamaica Gazette* and the production of a copy of the *Jamaica Gazette* containing the name of any authorized person shall be conclusive evidence that such person has been duly appointed. The Inspector General may at any time revoke the appointment of any person authorized as aforesaid.

Whenever any expense has been incurred by any authorized person in connection with the arrest or attempted arrest or prosecution of any suspected person under this Law, the Governor may, in his discretion grant compensation to such authorized person for such expense out of the General Revenue of the Colony, under the same conditions as those in which compensation may be made to a constable: Provided that such expense be recommended by the Agricultural Society by which such person was authorized.

3—If after enquiry into the circumstances of the arrest of such suspected person which shall be on oath except as to any evidence given by the suspected person, the Justice of the Peace or the Clerk of the Courts is of opinion that the arrested person was in possession of the article of agricultural produce under circumstances of reasonable suspicion and that such suspected person does not give a satisfactory account of the manner in which he became possessed of such article, he may in default of sufficient bail, order that such suspected person be detained in custody until the next convenient sitting of the Resident Magistrate for the parish; provided, that such detention shall not exceed seven days. Such Justice of the Peace or Clerk of the Court may, after holding such enquiry, commit such suspected person for trial before a Resident Magistrate, on a charge of being unlawfully in the possession of the articles of agricultural produce of which he was in possession, and such Justice of the Peace or Clerk of the Courts may order such articles of agricultural produce to be detained pending the trial of such suspected person. If the Justice of the Peace or Clerk of the Courts after enquiry is not satisfied that the arrested person was in possession of the article of agricultural produce under circumstances of reasonable suspicion or is satisfied with the account given by such suspected person he shall forthwith discharge the suspected person from custody.

4—On the trial before a Resident Magistrate of any such suspected person, on a charge under this Law, the burden of proving that he became honestly possessed of any article of which he was in possession as aforesaid, shall be upon such suspected person; and if he shall refuse or be unable to satisfy the Resident Magistrate before whom his trial takes place, that his possession of the said article was honest, it shall be deemed to be prima facie evidence of his guilt, and the Resident Magistrate may convict him of the offence with which he has been charged as aforesaid, and may make such order for the disposal of the article or articles of agricultural produce of which he was in possession, as may appear to meet the justice of the case.

5—Every person committed for trial under this Law shall be tried by the Resident Magistrate on indictment which may be in the form in Schedule B hereto.

6—Any person convicted before a Resident Magistrate of an offence under this Law, shall be liable to imprisonment, with or without hard labour, for a period not exceeding six months; and upon any subsequent conviction on a similar charge to imprisonment, with or without hard labour for a period not exceeding twelve months.

7—In all proceedings under this Law the suspected person, and the husband or wife of such suspected person shall be competent but not compellable witnesses.

8—All proceedings under this Law shall be free of fees and stamp duty.

SCHEDULE A.

Logwood	Oranges
Fustic	Grape Fruit
Cedar	Forbidden Fruit
Mahogany	Shaddocks
Satin Wood	Lemons
Mahoe	Limes
Lignumvitæ	Apples
Ebony	Grapes
Bitterwood Spars	Pine Apples
Lancewood	Bananas
Pimento Sticks	Plantains
Orange Sticks	Breadfruit
Broadleaf	Yams of any kind, and heads of yams
Canes	Cocoas, and heads of cocoas
Cocoa or Chocolate	Potatoes and sweet potatoes

Kola
Nutmegs
Ginger
Arrowroot
Pimento
Tobacco
Annatto
Coconuts

Cassava
Peas, Beans
Indian corn or maize
Guinea corn
Guinea Grass
Garden vegetables
Plants or suckers of any of the above
Sarsaparilla
Coffee

SCHEDULE B.

In the Resident Magistrate's Court for the Parish of
to wit the day of 19
It is hereby charged on behalf of our Sovereign Lord the King that A.B. was
on the day of in the
Parish of unlawfully in possession [here state the
quantity and nature of the agricultural produce] against the form of the Statute in
such case made and provided.

C. D.

Clerk of the Courts for the Parish of
AUTHORIZED PERSONS.

RULES FOR THE PAYMENT OF "AUTHORIZED PERSONS" FOR ATTENDING COURT AS WITNESSES AND FOR PERFORMING ACTUAL DUTIES.

1. Every "Authorized Person," appointed under the Praedial Larceny Law, Law 4 of 1909, shall be paid for attending Court, as a witness, according to the Rule set out in Schedule A of Law 9 of 1899, as amended by Law 4 of 1902; but in no case shall he be paid less than 2/- per diem, and mileage, at the rate of 3d. per mile, one way only.

2. Every such person shall be paid, at the rate of 2/- per diem (and not more, and without mileage) for each day on which:

- (a) he effects an arrest, or actually attempts to effect an arrest;
- (b) he attends at a Police Station, or before a Magistrate, on duty, in connection with a case under the said Law;
- (c) does such other service, in connection with his duties under the Law, as has occupied him a substantial part of a day, or other wise entitles him to payment, in the opinion of the officer authorized to pay him.

3. All payments shall be made by the Clerk of the Courts at the Court House, where the case is tried, or at the Courts' Office, if the case does not come to trial.

The above Rules were approved of by His Excellency the Governor on August 22nd, 1910, in C.S.O. letter No. 8432-10103 of that date.

AUTHORITY SENT TO EACH AUTHORIZED PERSON ON HIS APPOINTMENT.

To.....

You are hereby authorized, under Section 2 of Law 4 of 1909, to arrest any "Suspected" person or persons in possession of any articles of Agricultural Produce, mentioned in Schedule A of the said Law, or any other articles of Agricultural Produce hereafter added to such Schedule by order of the Governor in Privy Council published in the *Jamaica Gazette*, and deal with such person or persons as provided for in Section 1, of the said Law.

Inspector-General of Police.

..... day of 19.....

COPY OF MEMORANDUM BY THE ATTORNEY GENERAL, AS TO THE POWERS OF AUTHORIZED PERSONS.

"Authorized Persons" under the Praedial Larceny Law 1909, (Law 4 of 1909) may arrest, without a warrant, any person who has been, or is, in possession, of any of the articles of agricultural produce mentioned in the Schedule to this Memorandum, if they have reasonable cause to suspect that such article has been stolen, or has been received with the knowledge that it was stolen or dishonestly come by. The Authorized Person making the arrest should forthwith take the person arrested, with the article, or articles of agricultural produce, before a Justice of the Peace or Clerk of the Courts and the Justice or Clerk will deal with the arrested person.

JAMAICA AGRICULTURAL SOCIETY.

THE PROTECTION FROM DISEASE PLANTS LAW

Colonial Secretary's Office,

14th May, 1915.

The Governor directs the publication, for general information, of the following notice with regard to the distinction between "notifiable plant diseases" and "Infectious Plant Diseases" as defined under the terms of Law 3 of 1915 "A Law to prevent the introduction and spread of Plant Disease."

1. The Governor in Privy Council has power to declare any disease of plants to be a 'notifiable plant disease' and the Governor to issue an order prescribing the treatment to be followed by the owner or occupier for the treatment of such notifiable plant disease.

In the case of a notifiable plant disease the owner or occupier and every person having the charge or management of land who knows or suspects the existence of a notifiable plant disease on the land of which he is the owner or occupier or has the charge or management shall with all practicable speed give notice in writing to the Director of Agriculture of the fact of the land or of any plant thereon being so infected or suspected, and should in such notice give all information in his power as to the extent and nature of the disease. The said notice shall be served personally on the Director of Agriculture or shall be addressed to him by registered post.

Where the occupier or the person having the charge or management of land is charged with an offence under the Law, he shall be presumed to have known of the existence of the disease, unless and until he shows to the satisfaction of the Court that he had not knowledge thereof and could not with reasonable diligence have obtained that knowledge.

A fine not exceeding £50 can be inflicted for a breach of an order made under the Law or for failure to notify a notifiable Plant Disease.

At present the Panama Disease of Bananas is the only plant disease declared to be a notifiable plant disease to which the above requirements apply.

2. An "Infectious Plant Disease" is a disease so declared by the Governor in Privy Council for which the Governor has power to make an order for treatment by the owner, occupier or manager concerned.

No notice of such a disease to the Director of Agriculture is required.

If the owner or occupier or the person having the charge or management of any land fails to carry out the measures prescribed in the order so issued, the Director of Agriculture or any person authorised by him in writing may enter on such land and may carry out the measures prescribed in the order and the cost of carrying out these measures is recoverable from such owner or occupier or person as the case may be at the suit of the Director of Agriculture or any person authorized by him in writing, as a Civil Debt before the Resident Magistrate for the parish in which the land in question is situated.

The *Bonnygate Disease of Bananas* and the *Bud-rot Disease of Coconuts* have been declared to be "Infectious Diseases" under this Law.

By command,

ROBT. JOHNSTONE,
Actg. Colonial Secretary.

The Governor directs the publication, for general information, of the following Order made by His Excellency under Section 4 of Law 3 of 1915. The Protection from Disease (Plants) Law, 1915, with regard to the Panama Disease of Bananas.

This Order will be published in pamphlet form with a preface containing an explanatory description of what constitutes "infectious" and what "notifiable" diseases.

ORDER.

Under Section 4 of the Protection from Disease (Plants) Law, 1915, (Law 3 of 1915):

Whereas it is provided by Section 4 of the Protection from Disease (Plants) Law, 1915, (Law 3 of 1915) that it shall be lawful for the Governor from time to time by Order to be published in the *Jamaica Gazette* to prescribe the measures to be taken for the treatment of any notifiable plant disease by the owner, occupier or person having the charge or management of any land, whether the land shall or shall not have been declared to be infected or suspected of being infected with plant disease and generally to make provision for the purpose of preventing the introduction and spread of plant disease or of any particular plant disease named in any such Order:

And whereas the Panama Disease of Bananas is and is hereby declared to be a notifiable plant disease, now therefore the Governor is pleased to prescribe the following measures to be taken for the treatment of the Panama Disease of Bananas:—

1. Every owner or occupier or persons having the charge or management of land (whether the land shall or shall not have been declared to be infected or suspected of being infected with plant disease) who knows or suspects the existence of the Panama Disease of Bananas on the land of which he is the owner or occupier or has the charge or management shall, on giving notice to the Director of Agriculture as required by Section 9 of the Protection from Disease (Plants) Law 1915, and pending the arrival of the Director of Agriculture or a person appointed to carry out the provisions of the said Law, prevent as far as possible all persons and animals passing over the land infected or suspected of being infected and shall disinfect with a solution of one half pint of Jeyes' Fluid, or similar disinfectant, per gallon of water, the boots or naked feet of all persons and the feet of any animals entering or walking on the land infected or suspected of being infected and shall disinfect by the heat of fire, or thoroughly cleanse with the disinfectant above described, all cutlasses and tools used in the examination or treatment of any suspected plants, and shall examine the clothing of any person leaving the infected area and shall carefully remove any mud or soil found on such clothing, and shall wash any clothing so soiled with the disinfectant above described.

2. The occupier or other person having the charge or management of land which in the opinion of the Director of Agriculture is infected with the Panama Disease of Bananas (whether the said land shall or shall not have been declared by Order published in the *Jamaica Gazette* to be infected or suspected of being infected with Plant Disease) shall make a systematic examination of every stool of bananas within a distance of one chain from the diseased plant by cutting down and observing the appearances of the stem and base of each plant. If one or more diseased plants are thereby disclosed a further area of one chain in distance from any such diseased plant shall be further examined in the manner above prescribed, and this procedure shall continue until an area has been attained in which no diseased plant is found within one chain of the boundaries of the said area. The whole area thus included shall be an infected area (hereinafter referred to as "the infected area") for the purpose of these regulations and shall be treated by the said occupier or other person as follows:—

- (1) Every banana plant within the infected area whether diseased or not, shall be dug up with its roots and cut up into small slices not exceeding three inches in thickness. The pieces of plants which are not diseased shall be piled into heaps and treated with fresh-slaked lime. The pieces of the diseased plants shall not be mixed up with those not diseased, and if practicable, shall be thoroughly burnt so that the fragments are charred to the centre. Where it is not practicable to use fire the diseased pieces shall be treated with from 4 to 20 gallons of lime per plant according to the size thereof. Lime shall be applied to all the holes from which plants have been dug and these holes left open and exposed to the sun. The plants found to be diseased shall be cut up and treated last. The pieces of diseased plants shall after treatment be kept in some place from which they are not likely to be carried away by flood rains.
- (2) All root food-crops including yams, taniers, groundnuts, sweet potatoes, cassava, Irish potatoes, onion, scallions, turnips, growing on the infected area shall be dug up and destroyed or thoroughly disinfected at the time of treatment of the diseased area with the disinfectant above described.
- (3) No person except those acting under Section 8 of the Protection of Disease (Plants) Law, 1915, shall without the permission in writing of the Director of Agriculture first had and obtained enter on the infected area and no poultry or domestic animal shall be allowed on the said land.
- (4) No Plants or crops of any description shall be planted on the infected area, nor shall any implements of tillage be used thereon for a period of at least one year from the last treatment of such area nor until the written permission of the Director of Agriculture has been obtained by the said occupier or other person.
- (5) No person shall remove from the infected area any cutlass or implement of tillage used thereon unless and until such cutlass or implement has been disinfected by the heat of fire (or thoroughly cleansed with the disinfectant above described.)
- (6) All persons who enter the infected area to carry out the treatment prescribed in this Order shall, before proceeding from the infected area to a place not infected, wash their boots or naked feet in a solution of one half pint of Jeyes' Fluid or similar disinfectant per gallon of water.
- (7) Should adventitious Banana Suckers appear upon any land after treatment thereof as an infected area under this paragraph, such land shall be treated in the manner prescribed in (1) of this paragraph and the provisions of (5) and (6) of this paragraph shall apply to such land.

3. The occupier or other person having the charge or management of any land adjacent to land which in the opinion of the Director of Agriculture is infected with the Panama Disease of Bananas shall treat as an infected area within the meaning of the next preceding paragraph all land within a chain from the nearest diseased plant on the adjacent land.

In this paragraph "Diseased Plant" means a plant which in the opinion of the Director of Agriculture or of a person appointed under Section seven of the Protection from Disease (Plants) Law, 1915, is infected with the Panama Disease of Bananas.

4. This Order may be cited as The Panama Disease of Bananas Order, 1915.

5. The Interpretation Law, 1900, (Law 9 of 1900) applies for the purpose of the interpretation of this Order in like manner as it applies for the purpose of the interpretation of a Law.

(Sgd.) W. H. MANNING,
Governor.

King's House, Jamaica,
10th May, 1915.

ORDER.

Under Section 4 of the Protection from Disease (Plants) Law, 1915, (Law 3 of 1915).

Whereas it is provided by Section 4 of the Protection from Disease (Plants) Law, 1915, (Law 3 of 1915) that it shall be lawful for the Governor from time to time by Order to be published in the *Jamaica Gazette* to prescribe the measures to be taken for the treatment of any infectious plant disease by the owner, occupier or person having the charge or management of any land whether the land shall or shall not have been declared to be infected or suspected of being infected with plant disease and generally to make provision for the purpose of preventing the introduction and spread of plant disease or of any particular plant disease named in any such Order.

And Whereas the Bonnygate Disease of Bananas is a plant disease which the Governor in Privy Council by notice published in the *Jamaica Gazette* has declared to be an infectious plant disease;

Now therefore the Governor is pleased to order and prescribe as follows:—

1. The occupier or other person having the charge or management of any land on which there are banana plants infected with the Bonnygate Disease of Bananas, whether the land shall or shall not have been declared by order published in the *Jamaica Gazette* to be infected or suspected of being infected with plant disease, shall take the following measures for the treatment of the said Bonnygate Disease of Bananas.

(a) the diseased plants shall be dug up completely, chopped into pieces not exceeding three inches in thickness and the pieces covered with dry powdered lime, and all holes from which the diseased plants are removed shall be treated with lime and left exposed to the sun.

(b) All adventitious banana suckers appearing at any time within three months at or near any place from which banana plants have been dug up and treated under paragraph (a) above, shall be dug up and treated in the manner prescribed in the said paragraph (a).

(c) No banana plants shall be grown or allowed to grow on or near any place from which banana plants have been dug up and treated under paragraph

(a) above for a period of three months after such digging up and treatment.

2. This Order may be cited as "The Bonnygate Disease of Bananas Order, 1915."

3. The Interpretation Law 1900 (Law 9 of 1900) applies for the purpose of the interpretation of this Order in like manner as it applies for the purpose of the interpretation of a Law.

W. H. MANNING,
Governor.

Kings House, Jamaica,
14th May, 1915.

ORDER.

Under Section 4 of the Protection from Disease (Plants) Law 1915, (Law 3 of 1915).

Whereas it is provided by section 4 of the Protection from Disease (Plants) Law 1915 (Law 3 of 1915) that it shall be lawful for the Governor from time to time by Order to be published in the *Jamaica Gazette* to prescribe the measures to be taken for the treatment of any infectious plant disease by the owner, occupier or person

having the charge or management of any land whether the land shall or shall not have been declared to be infected or suspected of being infected with plant disease and generally to make provision for the purpose of preventing the introduction and spread of plant disease or of any particular plant disease named in any such Order;

And whereas the Bud Rot Disease of Coconuts is a plant disease which the Governor in Privy Council by notice published in the *Jamaica Gazette* has declared to be an infectious plant disease;

Now therefore the Governor is pleased to order and prescribe as follows;

1. The occupier or other person having the charge or management of land on which there shall be any coconut trees infected with the Bud Rot Disease of Coconuts whether the land shall or shall not have been declared by order published in the *Jamaica Gazette* to be infected or suspected of being infected with plant disease, shall take the following measures for the treatment of the said Bud-Rot Disease:

- (a) If one or more leaves in or near the bud of a coconut tree turn yellow and break near the end and on cutting down to the base of the affected limbs yellow or dark spots are found to be present, the hanging dead leaves shall be fired so as to burn away all expanded foliage. If the tree does not recover so as to produce healthy growth at the heart within 4 months after this treatment the diseased tree shall be cut down and the bud destroyed with fire.
- (b) If the heart of the tree, though green, bends over and looks wilted and on examination yellow or dark spots are found to be present on the affected parts, the tree shall be cut down and the top thereof treated with fire so as to char it to the centre.
- (c) If the heart leaves of the tree dry up entirely and a soft, sticking rot is present in the stalks, the tree shall be cut down and the top thereof treated with fire so as to char it to the centre.
- (d) If the heart of the tree has fallen away completely the tree shall be cut down and the upper portion thereof treated with fire so as to char it to the centre.
- (e) In cases where it is dangerous or impracticable to use fire on the spot, the diseased material shall be carefully removed and treated with fire in a safe place.

2. This Order may be cited as "The Bud Rot Disease of Coconuts Order, 1915."

3. The Interpretation Law 1900 (Law 9 of 1900), applies for the purpose of the interpretation of this Order in like manner as it applies for the purpose of the interpretation of a Law.

W. H. MANNING,
Governor.

King's House, Jamaica,
14th May, 1915.

BOOTS.

People coming back from Central America must now have their boots disinfected. The reason is that the germs of Panama Disease of Bananas are carried in soil, and there is usually some dirt contained between the soles and uppers of boots. The following order by the Governor has been made:—

The Governor directs the publication, for general information, of the following order made by His Excellency under the powers vested in him by Section 4 of "The Protection from Disease (Plants) Law, 1915," Law No. 3 of 1915, prescribing the conditions under which alone the importation of boots from certain countries will be permitted.

It is also notified that the means of disinfection will be provided by the Customs Officer.

ORDER.

In exercise of the powers in me vested by Section 4 of the Protection from Disease (Plants) Law, 1915, I Brigadier-General Sir William Henry Manning, K.C.M.G., C.B., Governor of Jamaica, do hereby prescribe the following conditions under which alone the importation of boots from Dutch Guiana, Colombia, Panama, the Canal Zone, Costa Rica, Nicaragua, Guatemala, and Honduras, shall be permitted, namely:—

That such boots shall prior to admission to the island be soaked for not less than ten minutes in a solution composed of either:—

- (a) 1 lb. Jeyes' Fluid diluted in not more than one gallon of water, or
 - (b) $\frac{1}{2}$ lb. Sulphate of Copper diluted in not more than one gallon of water,
- provided that any Custom Officer may waive the foregoing condition in regard to any boots which he may be satisfied neither belong to nor have been used by labourers who have worked on banana farms in any of the above mentioned countries.

W. H. MANNING,
Governor.

PINEAPPLES.

It is strange that Cuba should be able to grow and ship to northern markets large quantities of pineapples and from Jamaica practically none are shipped. In 1912 only 311 packages of a value of £58 6s. 3d. were exported representing mostly a few boxes from private parties, probably presents to friends. Formerly pineapples were common in the local markets from April to September, and after that time some could always be got at an increased price. And always the favourite pine locally, and the most expensive, was the "Ripley." Now the Ripley appears to have gone out of cultivation; the Liguanea Plains was its special home and every other person with some land had a patch; some had small fields. Now hardly anybody has any there at all. The markets from June to September have usually now, only the hardy Bullhead or Red Spanish; the well known Sugar Loaf and a variety sometimes called "Sugar" or "Chinese" pine, the two latter being very soft and juicy, but not of such distinct flavour as the Ripley. They grow half wild in small settlers cultivations without much attention. The Black Pine has a better flavour, and is a strong grower withstanding drought, but it is not a prepossessing pine in appearance, as it never makes a bright colour, and so is not a favourite local buyers, for use on board steamers or for export.

The cultivation of pineapples for shipping has generally been a failure here when tried on a large scale. Yet during the period the Direct Line was running, we had suitable shipping facilities. It is not that pines will not grow well; they do and with no great difficulty, yet they have not paid on a large scale. It seems a puzzle why the growing of a good shipping variety like the Bullhead or Red Spanish for shipping to the United Kingdom should not pay. On paper it should pay, in practice it has not.

(This is in answer to several correspondents who are late arrivals here and who have been asking why pineapple cultivation should not be embarked upon; they have given the prices they have had to pay for pines in London; they have estimated the cost of shipping they have figured out so many plants to the acre here, and so many fruits therefrom and the result has been £100 per acre gross!)—ED.

At the same time pineapples for the table should be available all the year through, especially at the time we expect tourists to be here, for they always ask for pines. Yet for some years back between Christmas and April a good pineapple has been the scarcest fruit to get, and hotel keepers often could not get them at any price, except a few Bullheads. It was the continued droughts since 1907 that knocked the Ripley pineapples almost out of existence in the Liguanea Plains of St. Andrew, and plants are now very scarce.

It would be the greatest pity if this, the best flavoured pineapple of all pines, should remain so scarce that they cannot be had in any numbers even in their season.

—:O:—

Most of the men who in recent years have lived far beyond the ordinary term of human life have been noted for hobbies; that is, besides their ordinary occupation, whatever it may be, they have had one or more interests to which they have turned for refreshment, and which have evidently proved not an expenditure of energy but a recreation in the etymological sense of that word, as providing an opportunity for other portions of their brain to relax themselves thoroughly.

THE JOURNAL OF THE MANURING OF COCOA.

There have been carried on in Dominica and Trinidad some systematic experiments in the manuring of cocoa over a period of years. The results of one year against any other year would not be of much value as there might be better seasons in one year than the other, but the average results over a period of five years are likely to give results from which definite experience can be gained and acted upon. In Dominica such experiments have been carried on for thirteen years now. We have referred to these before, and given some of the results. In all the experiments in both Islands certain plots are left that are given no manure and no treatment; these are called check or control plots. In Dominica the invariable result has been that mulching with grass and leaves has given the best results by far, the nett returns given being more than double over some of the combinations of fertilizers used; but these experiments were only carried on at the Botanical Station, and the same results might not apply on different types of soil or with a different rainfall. In Trinidad, however, the experiments have been carried on, on various estates having different soils and different rainfalls, some on level ground, some on hillsides, some on open ground, and some in deep valleys, and the results have been so very varied that one is forced to the conclusion that experimenting must be done for one's self on one's own estate.

On some of the estates, the control or check plots with no manure have given better nett results than where expenditure has been incurred on various combinations of fertilizers and for lime and for pen manure. This does not mean that these fertilizers or chemical manures have not increased the yields, but that they have not increased the yield enough to pay for what was expended over the results from the control plot where nothing was expended in manuring. Therefore the control or unmanured plots have given better nett results; this, however, does not apply to all the estates.

We will take one estate, for instance, which had 89.32 inches of rain in the year, and it is stated that with the exception of plot 3 (on which 2 lbs. of Basic Slag and 1 lb. of Nitrate of Soda were applied per tree, and which gave only a yield of \$39.21) the increase obtained from the manured plots was greater than from the control plots, and in the case of 6 of the plots out of 13, the increase was quite appreciable. The best result was obtained from 2 lbs. of Basic Slag and $\frac{1}{2}$ lb. of Sulphate of Potash, which gave a nett return of \$78.41, while the best control plot gave \$44.44. The return from the control plots on the average was 3,087 pods against 4,543 pods per acre from the average of the manured plots. The field under experiment was the worst on the estate and was specially selected on that account. As there was practically no improvement in the yield of the trees during the first two years, it was thought advisable to try the effect of dynamite on the soil which was a stiff, heavy clay. Accordingly, during the first week of June, 1914, half cartridges (1lb. each) of Dupont's Red Cross Dynamite, were exploded at a depth of about 3 ft. between every two cocoa trees in each plot, except No. 4, so that the charges were about 12ft. apart. The effect on the soil was very good, very few "blow outs" having been experienced especially after the first day when the labourers had got into the correct way of tamping. It was observed that holes drilled a couple of days in advance collected

water, and so gave reason to believe that in the rainy season water stagnates 2 to 3 ft. below the surface of the soil and cannot be removed by ordinary drainage. The additional cost of this dynamiting experiment was £7 16s. 8d. per acre. The results of the dynamiting over the check or control plots remain to be proved.

We take another estate with a much lower rainfall—47.68 inches. On this estate one control plot which received no manure gave the best nett results, and the other 2 control plots gave larger nett profits than some of the manured plots, although the manured plots gave larger increases; these increases, however, were not enough to pay for the cost of the fertilizers and the labour in applying them. The largest number of pods picked per tree was 21.79 where the following combination of fertilizers had been applied:—2 lbs. Bone Meal, $\frac{1}{2}$ lb. Sulphate of Potash, $\frac{1}{4}$ lb. Sulphate of Ammonia. And this acre gave the best nett results of all the manured plots, the total nett profit after deducting the cost of the manures being \$36.83 per acre of 253 trees. The control plot, No. 4, however, with no manure, gave \$37.40. The lowest yield of any of the acre plots was \$16.70, and the combination of manures applied was— $\frac{1}{4}$ lb. Sulphate of Potash, $\frac{1}{4}$ lb. Sulphate of Ammonia, 75 lbs. Pen Manure.

It will thus be seen that very different results can be got on different estates from the same combination of Fertilizers. On one estate the very best results were got from one combination, on the next estate the same combination gave less than the plot receiving no manure at all. Some of the estates had trees, 35, 40, and even 50 years old, but as we have no estates here with such old trees—i.e. acres of them—we are taking one estate with trees varying from 11 to 14 years old which is the age of a very large number of trees on estates here: the rainfall also is very much like what prevails over a good many cocoa estates in Jamaica—61.5. The best nett results on this estate were obtained from an application of 3 lbs. of Lime and 1 lb. of Superphosphate of Lime, per tree, a combination which gave almost the poorest results on the two previous estates mentioned; the nett yield from this combination was \$82. The next two best results were got from the two control plots with no manure—\$74.69 and \$72.82 respectively.

In the Trinidad experiments very useful information has been obtained on the natural yield of plots, the records from each tree having been kept. The average number of pods picked from trees 20 years old varied in 1913-14 from 23 to 44.65 pods on an estate with a large rainfall, and this has been an increase over 1912-13 when the average number of pods was 14 to 30.65.

In Tobago the returns given in wet cocoa from trees 10 years old with a rainfall of 76.69, was 1,074 lbs. to 1,989 lbs. each plot being an acre. The number of pods per lb. of dry cocoa varies very much on different estates and in different years on the same estates, from 10.96 to 18.84.

The natural yield of trees varies so very much, that one is led to consider what has caused this. We have written on the subject of the selection of seed very often, and we are convinced that all the operations in planting have to be conducted with the greatest care and watchfulness to see that from the very beginning the best seed is planted—that likely to be most productive—from a vigorous tree. The first need is the vitality in the seed itself. Every weakly plant that has started in a nursery should be eliminated at once. It is a

common habit to save expense by coaxing such weakly plants along. No young cocoa plant grown in a bamboo pot that is root-bound, should be planted, but ruthlessly rejected as it is unlikely that it would ever make a vigorous tree. It is better to reject hundreds of young plants than have trees cumbering the ground in after years, occupying space and costing money to keep up, with unprofitable results. The crops from trees vary so very much that this matter has to be studied. There are matured cocoa trees not giving more than 1 lb. of dry cocoa per tree, on the same land, and under the same conditions, and of the same age, there are trees yielding 14 lbs. on an average per annum.

In the Trinidad experiments it is also stated that the limed plots show that lime alone is of no value as manure for their kind of soils, yet their soils are stated to be deficient in lime. The addition of lime, however, is stated to be of great benefit if given with other plant food, in fertilizers or manures. It is also stated that trees yielding not more than 2 lbs. of dry cocoa are not profitable enough to justify much expenditure in cultivation.

:o:— SCHOOL GARDENS.

The competition in School Gardens will be continued this year. The Board of Management offer prizes to Teachers having School Gardens in the following districts:—

1. Prizes for the best plot of Sea Island Cotton confined to the following districts:—

Southern St. Elizabeth—			
3 prizes of 20s., 15s., 10s.	..	£2	5 0
Southern Manchester—			
2 prizes of 20s., 10s.	..	1	10 0
Southern Clarendon—			
3 prizes of 20s., 15s., 10s.	..	2	5 0
		£6	0 0

2. Prizes of 20s. and 10s. for the best plot of two varieties of Guinea Corn, red and white, confined to the following districts:—

(a) Southern Manchester	..	£1	10 0
(b) Southern St. Elizabeth	..	1	10 0
(c) Southern Clarendon	..	1	10 0

£4 10 0

3. Prizes of 10s. each for the best plot of corn (Maize) suitable for seed corn. The districts and prizes for this competition will be distributed as follows:—(1) Kingston, Port Royal, St. Andrew and Eastern St. Thomas; (2) Western St. Thomas and Eastern Portland; (3) Western Portland and St. Mary; (4) St. Ann; (5) Trelawny; (6) St. James; (7) Westmoreland and Hanover (Mr. Briscoe's district); (8) Westmoreland and Hanover (Mr. Somerville's district); (9) St. Elizabeth, Northern (Mr. Powell's district); (10) St. Elizabeth, Southern (Mr. Smith's district); (11) Manchester, Northern (Mr. Powell's district); (12) Manchester, Southern (Mr. Smith's district); (13) Clarendon; (14) St. Catherine

14 prizes of 10s. each, in all	..	£7 0 0
Total	..	£17 10 0

RULES.

1. The above crops should be planted during the months of August and September, (preferably between the 15th of August and the 15th of September) if the seasons permit; if too dry in these months, then not later than the 15th of October, the earlier the better.

2. The plots should be one-fourth of a square chain in extent.

3. Entries should be made by the 31st of August to the Secretary, Jamaica Agricultural Society, who will furnish seeds free.

4. Judging will take place in January or February, or as soon after as is possible, according to the seasons that may occur.

5. The Agricultural Instructor for the district will be the judge. He may pay visits as he has opportunities during the period of growth, and will form his judgment from the general conditions under which the crop is grown, and not entirely by the total crop.

NOTE. The kind of seed used, the exact measurement of the plot, the date of the planting, the distance between the plants, the rainfall during the period of growth of the crop, and the crop finally reaped should be carefully recorded in the School Garden record.

APPROVED— J. R. WILLIAMS, JNO. BARCLAY,
Director of Education. Secretary.

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SCHOOL GARDENS.

The following are the awards made in the School Gardens Competitions for the year 1914-15:—

CORN.

Mr. Hanson's District—1st, H. T. Crooks, Mt. Fletcher, 10/-.

Mr. Cradwick's District—1st, W. T. Edwards, Brainerd, 5/-;
R. A. Sutherland, Buff Bay, 5/-, equal.

Mr. Arnett's District—1st, L. M. Welsh, Duan Vale, 5/-; J. E. Hall, Jackson Town, 5/-, equal.

Mr. Briscoe's District—1st, T. A. Malcolm, Seaford Town, 10/-.

Mr. Powell's District—1st, R. A. Munroe, Comfort Hall, 10/-.

Mr. Smith's District—1st, J. H. Petrie, Barbary Hall, 5/-; A. N. Finlayson, Epping Forest, 5/-, equal.

Mr. Schleifer's District—1st, W. F. Clarke, Frankfield, 10/-.

Mr. Mossman's District—1st, R. M. Dillon, Linstead, 10/-.

Mr. Wates' District—No award.

Mr. Somerville's District—No award.

GUINEA CORN.

Mr. Schleifer's District (Southern Clarendon)—1st, A. L. Neita, Alley, £1; 2nd, P. L. Clarke, Watsonton, 10/-.

Mr. Smith's District (Southern St. Elizabeth).—1st, Miss I. C. Black, Top Hill, £1; 2nd, J. H. Petrie, Mountainside, 10/-.

COTTON.

Mr. Schleifer's District (Southern Clarendon).—N. S. McDona'd, Race Course, 15/-; A. L. Neita, Alley, 15/-; P. L. Clarke, Watsonton, 15/-, equal.

Mr. Smith's District (Southern St. Elizabeth).—1st, Miss I. C. Black, Top Hill, £1; 2nd, A. N. Finlayson, Epping Forest, 15/-; 3rd, J. T. Meek, Ballard's Valley, 10/-.

COTTAGE HOLDING COMPETITION.

PRIZES OFFERED FOR BEST KEPT SMALL HOLDINGS IN THE PARISH OF
PORTLAND. ONE ACRE OR UNDER. 1915-16.

RULES.

1. Prizes will be awarded for holdings of not more than one acre or less than quarter acre which are in the opinion of the judges best established as a home with suitable crops and surroundings.

2. The residence of the Competitor must be on the holding entered for competition, and the holding must be situated near (within a reasonable distance of) a Main or Parochial Road.

3. No Prizes will be awarded unless there are at least three times as many Competitors as there are prizes offered.

4. Prizes will be given as follows:—

1st Prize	..	..	..	£1	10	0
2nd Prize	..	..	..	1	5	0
3rd Prize	..	..	..	1	0	0
4th Prize	..	..	..	15	0	
5th Prize	..	..	..	10	0	
				£5	0	0

5. The judging will be conducted on a system of points as follows:

Houses and Outbuildings	..	20
Gates and Fences	..	15
Sanitation	..	15
Vegetable Garden	..	15
Flower Garden	..	10
Permanent Crops	..	10
Live Stock	..	10
Permanent Improvements	..	5
		100

6. It shall be competent for the judges to withhold any or all of the prizes if the Holdings entered for competition are not considered of sufficient merit.

7. Due notice to be given before judging commences (which will take place before the 31st March, 1916), and the decision of the Judges in all cases will be final.

8. Application for entries to be made as follows:—

To the local Agricultural Instructor, the Secretary of the Branch Society in your parish, or to

JNO. BARCLAY, SECRETARY,
Jamaica Agricultural Society,
11 North Paade, Kingston.

—:O:—

A man must have either great men or great objects before him, otherwise his powers degenerate, as the magnet's do when it has lain for a long time without being turned towards the right corners of the world.

HOUSEHOLD HINTS.

ORANGE MARMALADE.—This is an easy method. Take equal weights of oranges and fine white sugar. Put the oranges whole into a preserving pan, cover them with cold water, and bring to the point of boiling. Pour off the liquid, put fresh water with the fruit, and boil gently until the rinds of the oranges can be easily pierced with the head of a pin. Take out and drain the oranges, and cut them—skin, pulp and everything—into very thin slices; remove the pips, and throw the fruit into a preserving pan, with half a pint of the water in which the oranges were last boiled, to every pound of fruit, and half the sugar which is to be used. Simmer gently for 30 minutes, then add the remainder of the sugar, and boil 20 minutes longer, or until the marmalade jellies. Pour it into jars and when cold, cover and store for use.

LEMON JELLY MARMALADE.—Take 3 lbs. lemons, 4 pints cold water, preserving sugar. Choose good fresh lemons with thin skins. Wash them carefully, and peel off the rind as thinly as possible. Now cut the yellow rinds across in thin strips or shreds, put these into a small saucepan with a pint of the water, and let them simmer until tender, about half an hour. Meanwhile remove the white skin from the lemons (this is not used in the marmalade) and cut the juicy inside part in small pieces. Put this into the preserving pan with the remainder of the water, bring to the boil, and boil steadily about one hour, stirring frequently. Then strain through a fine hair sieve or jelly bag without pressing the fruit. When all the liquid has run through, add it to the lemon shreds and their liquid. Measure this, and return it to a clean preserving pan, allowing $\frac{3}{4}$ lb. sugar to each pint of liquid. Bring to the boil, and boil until the marmalade will set readily. Pour into jars and cover.

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ORANGE JELLY.—Take 4 lbs. marmalade oranges, 2 lemons, $4\frac{1}{2}$ pints water, preserving sugar. Wipe the oranges and lemons with a damp cloth, and grate off the yellow rinds only. Then remove all the white skin, which is not used in the making of the jelly. Cut the inner part of the oranges and lemons into small pieces, and put it into a preserving pan with the water. Boil for half an hour, stirring frequently, then strain through a hair sieve or jelly bag, and allow the juice to drop without pressure. Measure this liquid and put it into a clean preserving pan, with the grated rinds, and 1 lb. preserving sugar to each pint of juice. Bring to the boil, and boil from 10 to 15 minutes, or until it will jelly. Skim well, pour into jars, and cover while hot.

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GRAPEFRUIT MARMALADE, I.—Choose fruit not *quite* ripe, clean well with a cloth or brush, and soak in water—to 6 of the fruit one gallon water. Next day quarter them taking out cores and pips, then put on to boil in the water in which they were soaked and boil till skins are tender, then take them out and pass through a mincing machine, return all to the water, then weigh and use weight for weight of sugar and boil till syrup jellies.—C. T. W.

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GRAPE FRUIT MARMALADE, II.—3 Grape Fruit, $2\frac{1}{2}$ lbs. sugar, 1 quart and 1 pint water. Slice the Grape Fruit thinly and soak for 24 hours; then turn into a preserving pan, bring to the boil and then throw the juice off. Add the same quantity of water and allow to boil again, add sugar gradually and boil until of the right consistency. W. H.

(Some Guava Recipes next month.)

* * * * *

PREPARATION OF COCOA.—To prepare the Cocoa seeds for drinking purposes after they are cured, they should be placed in an iron pot over a fire and well parched so as to facilitate the removal of the outer skin or shell. This done and the seeds separated from the trash, they are next placed in a mortar and thoroughly pounded; cinnamon or nutmeg can be added and well mixed in, if flavouring is desired; it is then in a condition to be rolled into sticks, which being soft and moist should be set aside to cool and harden for a couple of days.

To prepare the drink, these sticks should be grated to a fine powder, add the required amount of water and boil for about ten to fifteen minutes, when milk can be added to suit the taste and the chocolate is ready to serve.

NOTE.—Chocolate for Exhibition purposes must be unflavoured and without artificial colouring.

STOCK NOTES.

BLACK LEG.—Black Leg is a disease that very much resembles Anthrax. The symptoms are very much the same in both cases, excepting that the animal may live a few days longer with Anthrax than with Black Leg.

The most important characteristic of this disease is the appearance of a tumor or swelling under the skin of the affected animal a few hours after the setting in of the disease.

The tumor may be located on the thighs, neck, shoulder, breast, hock joints, flanks or rump. By examining or feeling the joints, a peculiar crackling sound is heard under the skin. This is due to a collection of gas formed by the germs as they multiply. At this stage the skin becomes dry and cool to the touch in the centre of the tumor. If the swelling is lanced, a frothy, dark red, rather disagreeable smelling fluid is discharged. The animal manifests little or no pain during the operation. The treatment of this disease is very unsatisfactory. In fact it is useless to undertake it. A prevention of the disease is the only wise thing to undertake. This is to render the balance of the herd immune by vaccination with Black Leg Vaccine.

* * * * *

With fresh lush grass in plenty after the genial rains we have had, in most districts young stock may soon get into prime condition, and rapid improvement from poor condition to putting on flesh, favours the outbreak of Black Leg. There is no cure once an animal is attacked, but inoculation with "Blacklegoids" advertised in this JOURNAL is a safeguard. All carcases of animals that have died of this disease should be burned at once.

:o:

PIGS AND MUD.—Just as a hen takes a dust bath and a man takes a water bath, a pig likes a mud bath. Even if the pig has a nice pool of water available, he will surely turn up the mud on the edge and get plastered over. It is natural for the hog to do this—the mud keeps flies and other pests off and clears off scurf from his skin. *But*—and mark this *but*—there is such a thing as clean mud and dirty mud, and a filthy pool is not clean mud. Because the hog likes a wallow that does not mean that he likes to wallow in filth. Clean water and a clean wallow are necessary things for a pig.

:o:

CALF MILK.—The question was asked us the other day as to when the milk from a cow was good for human food after the cow had a calf. The calf milk or colostrum is a special milk provided by nature when the calf is born and is very laxative in effect. It is not good for human food. It usually lasts 3 days, but traces of it may last up to the 5th day. Generally speaking, however, the milk is quite good for human use on the 4th day.

:o:

PIGS AND WORMS.—It is not realized how much pigs are infested with internal parasites, generally slumped under the term "worms." To clear these out sometimes takes drastic treatment, but, unless in bad cases, the following simple powder used regularly for a period say one week in every month, would keep worms from getting a hold in the pigs and help to clear any out where the pigs are not too badly infested.

In the latter case a regular and careful medicinal treatment would be required, the exact nature of which would depend on the symptoms of the pigs.

Take 12 lbs. of charcoal, 5 lbs. woodashes, 5 lbs. of coarse salt and 1 lb. of Sulphate of Iron or Copperas, grind fine and feed one tablespoonful per 100 lbs. weight of pig, in every feed given to the pigs.

—:O:—

OVERRUN IN BUTTER MAKING.—The overrun in butter making is often confusing to those not familiar with the composition of butter nor with the process of making it. Overrun means merely that a pound of butter-fat when churned into butter will produce more than a pound of butter, just the same as a pound of flour when mixed with yeast, milk, salt and water will make more than a pound of bread. When the cream tests 25 per cent. it requires 4 pounds of such cream to contain 1 pound of butter-fat. After the removal of the butter-fat by churning it is washed to remove the butter-milk, then salted to suit the market. The composition of average butter is as follows: Butter-fat 82.5 per cent, water 14 per cent, casein 1 per cent and mineral matter 2.5 per cent.

In the process of making butter, the constituents naturally would vary the same as in bread, depending upon the skill of the maker. In both cases, the water would vary the most.

—:O:—

There is in operation in Victoria, Australia, a Law which compels the annual dipping of all sheep and lambs, except where the owner can obtain a certificate from a stock inspector to the effect that his stock is free from ticks and lice. What would be said in this country if a similar regulation were in force? And yet no regulation could be of more benefit to the stock owner generally than one of this description. Few realise the immense amount of damage done by ticks, because it is not damage than can be plainly seen. Perhaps the word "damage" is not quite a correct definition of the harm done; it would probably be better to use the words "loss occasioned by those animal-culæ," for they, like all other live animals, have to be kept, and the food they consume is of the most costly description, viz., the blood of the animal. During the time they are occupants of the cow it is impossible that the animal host they inhabit can either develop and fatten or produce milk at the same rate as it would if they were absent.—From the JOURNAL for November, 1912.

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DRAYS AND BRAKES.—Every dray should be fitted with a brake. It saves the mules, especially the shaft mule, a tremendous amount of strain, and pays the owner.

In most districts carts and drays have no brakes at all, or only log of wood against the wheel.

We would go so far as to make the use of brakes compulsory.

We see nice carts now in North Manchester fitted with effective brakes worked with a lever at the right hand.

—:O:—

There are about 180,000 acres planted in citrus fruits in California. There are about 8,000 citrus growers, the average holding being about 20 acres. The annual shipment is now about 14,500,000 boxes, approximately one-sixth of the world's supply. (From Circular No. 121 of the University of California, College of Agriculture.)—*The Agricultural News*, 80, 1, 1915.

POULTRY NOTES.

PRESERVING EGGS.—Eggs are still plentiful and will be until August. We remind readers who never like to be without eggs of their own and who use a large number around Christmas, that June and July is the period when eggs should be preserved and kept until fresh eggs are scarce and dear.

We do not repeat the recipes for using Silicate of Soda (Water Glass) as a preservative, nor the lime method. Turn up the JOURNAL for June, 1913.

* * * * *

We can assure those who may doubt that eggs can be kept in a tropical climate that these methods are not new even here. They have been tested long ago. Eggs put down in Water Glass solution in June kept in a fairly cool place will be quite good in December. Infertile eggs are, however, always better for this purpose than fertile eggs and as the hatching season is over, the cocks might be put up away from the hens.

* * * * *

Every year we repeat methods of treating the various troubles that affect fowls, and still letters come in; if not every day, at least never a week passes without someone asking for advice on the treatment of the most common troubles.

The little booklet "Poultry in Jamaica," price 2d. from this Office, should be in the hands of everyone interested in rearing even a few hens.

———:O:———

FEEDING YOUNG DUCKS.—One of the greatest causes of deaths among young ducks is feeding sour food. An enquirer asked us the other day why so many of his young ducks should die. They were fed 3 times a day on raw cornmeal merely mixed with water, and any left remained in the pans from one meal to another. This is altogether wrong. The cornmeal should be cooked into a gruel and fed to the young ducks, just enough that they will finish and look for more. The dish should then be lifted away and not left to sour in the sun. A ration of cornmeal 3 times a day is too monotonous and some other ration, in the way of scraps from the table should be fed.

———:O:———

CAUSES OF INFERTILITY OR THE EMBRYO NOT DEVELOPING IN THE EGGS.—Enquiries about this are so numerous that it is difficult to answer them all fully. One of the chief is the cock being off colour, which he may be for a day or several days, and then recover without any indisposition being noticed, or a hen may be off colour and still lay; or the eggs may have been kept too long and although kept in a cool place have been exposed to the breeze, and this dries the moisture out, so that although the embryo starts to develop it dies in the shell at an early stage. Then there is another cause,—weakly parents, or the cock having too many hens—a common cause of infertility and weak embryos. Then the setting hen may have more eggs than she can cover and some get chilled, or she may stay off the eggs too long, or not long enough, for it is a mistake in this hot climate for a hen to sit too close; the hen should come off for twenty minutes to half an hour every day. It she was off for longer on an occasion it would not harm the eggs unless they were exposed to breeze.

PRESERVING EGGS.

VARNISHING EGGS WITH WATER GLASS.—Relative to the preserving of eggs we give the following new idea:— “Last Spring I began experimenting with water glass as an egg preservative in a way that I never have seen referred to, but which has thus far led to results so satisfactory and promising that they seem worth making known before the season of low-priced eggs again passes. The method, in a word is varnishing, instead of immersion. After trying various degrees of dilution of the water glass I came to use for my later lots of eggs, *four parts of water to one part of water glass*. Using less than an *ounce* of the diluted material glass at a time I found a tapering measuring glass and a small, flat brush to be convenient. A sheet of newspaper was spread on the table, and the eggs set on it as varnished. They dry quickly, and when convenient thereafter I gave them a second coat, afterward packing them in sawdust to prevent breakage, and keeping them in a fairly cool place. Up to date the eggs used have been fully as good as those immersed, and I am inclined to think better. They were not produced on my own place, and those that showed signs of “going some time” may easily have been two or three days laid when varnished. They were all or nearly all fertile, probably also. The greatest advantage over the immersion method is economy. Just how great I have not calculated, but to state it very roughly I should think the cost of immersion might be a thousand times the cost of varnishing.

A second important gain (which, because of the breadth of its application and possibilities, should perhaps stand far ahead of the first point) comes from the increased strength of the shell. A varnished egg is relatively hard to break, and would stand shipping hardships fatal to a *plain* one. If less dilute material were used, or more than two coats applied, eggs could be shipped as securely as nuts, and would keep good perhaps as long. To the housewife varnished eggs are far easier and more agreeable to handle than those immersed. They don't have to be fished out of a crock with a wooden spoon, and are dry when you get them. Of course, if a large number were to be done at a time dipping could be substituted for brushing.

There are some features of the process still to be improved. The paper adheres to the egg and nothing I have tried takes its place to advantage. Also a little dust on the brush or the fingers makes the egg look smeary. Again, we have hesitated to settle our coffee with eggshells that have been varnished, thinking the hot coffee might dissolve the varnish and charge our systems with an unwholesome quantity of sodium silicate. Perhaps you can allay this feat. I expect to go further with the matter myself, and shall be glad to learn anything others may know or discover concerning it.—*Rura New Yorker*.

(We have Silcate of Soda in rough crystals in stock.—Ed.)

—O:—

No one can lay down rules or systems for farming. Each man must work that out for himself, using all the information and experience available and as the farmer's knowledge and ability to think grows so will his management grow and change.

THE JOURNAL OF THE COMMENTS.

HALF-YEARLY GENERAL MEETING.—Members of the Society and Secretaries of Branch Societies should keep in mind that the Half-Yearly General Meeting will be held on the 15th July at this Office at 11.40 a.m., when the Governor, as President of the Society, will preside.

:o:

FINANCIAL YEAR.—We have reminded all Branch Societies that all Financial Years should be arranged to commence on the 1st of April; most Branch Societies have so arranged. Affiliations are due in that month but they are payable up to June 30th. New lists of members should also be sent in before June 30th.

A copy of the Statement of Accounts of each Society should be handed to the Instructor for his perusal and he should forward it to the Secretary of the Parent Society. It is desirable that the Instructors should be as closely acquainted with the business and finances of the different Societies as possible. All Branches should have their 'Treasurers' Accounts audited—in fact, all their financial matters should be carried through in a strict business manner.

:o:

WAR GIFTS.—Do not let us rest on our oars and be too self-satisfied with what we have done.

We were of the opinion that Jamaica had done pretty well as regards War Gifts, but Trinidad has done better. We could have and would have sent more had we had shipping space available on the steamers; however, we trust that the members of this Society will continue sending fruit and preserves whenever they are available. We shall be glad to know whenever and wherever there are early oranges available.

By the end of December we had only shipped 1,814 packages of Oranges and Grape Fruit and 13 cases of Preserves, while Trinidad had shipped 2,187 packages of Citrus Fruit and 53 cases of Preserves. Of course, Jamaica also sent a large number of other useful gifts—for instance, 16,750 Cigars, 53,000 Cheroots, and many thousands of Cigarettes.

Up to date we have shipped 1,960 boxes of Citrus Fruit and 30 packages of Preserves, etc.

:o:

WAR GIFTS—WALKING STICKS.—The Hon. H. Cork has taken up the project of sending Walking Sticks from Jamaica to be distributed to the wounded soldiers in the Military Hospitals, many of whom are crippled in the lower limbs. We have, in Jamaica, an abundance of wood suitable for making nice Walking Sticks—Pimento Sticks are well known as we export them for making umbrella handles. However, it is of no use sending sticks in too rough a state. they should be cut down to about the right length which is 3ft. long, not shorter, an inch longer will not matter; they need not be polished or made very fine.

It is a very difficult matter to get a small quantity of Walking Sticks to Kingston from some country places as there is a great deal of expense in getting them to the railway. We have promised Mr. Cork and have the permission of the Board of Management of this Society to receive Walking Sticks to be forwarded when a large enough number have been collected. If any one who can contribute

some will write to us, we will arrange about this and send them a label to get them into Kingston free by rail. The various Agricultural Instructors have been asked to interest themselves and gifts of Walking Sticks may be handed to them as they go around by those who can only supply a small quantity but would like to help.

—:o:—

WAR GIFTS—FRUIT & PRESERVES.—We should like to make another shipment of Fruit and Preserves between the end of June according as a steamer is available. We are rather disappointed at the small quantity of Guava Jelly—comparatively speaking—that has been sent in. We should like to ship about 1 ton in 10lb. tins, that is, 224 tins. We again repeat that we can supply these to anybody who will make Guava Jelly, to be shipped for the use of (1) the soldiers at the front, (2) the wounded in the Military Hospitals, (3) the sailors in the North Sea Fleet. Anyone sending a gift here can state their preference. A gift can be sent right to a soldier in the trenches, so long as we know his name, rank and regiment.

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THERMOMETERS.—Every one who keeps stock should have a Veterinary Thermometer. We have some in stock which we could send out, price 5/. Whenever a cow or hog gets off its feed a thermometer should be used.

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FIGS AND DATES.—The large trade in Smyrna figs should be stopped meanwhile the War is on and that port is blockaded. Figs are also largely grown in California and growers there will benefit. We cannot help thinking that the Banana Fig is a better form of dried fruit than the Smyrna fig—for which we ourselves do not care a fig. These figs are full of small seeds that are very annoying to the teeth.

Then again dates are mostly grown by Arabs—picked and packed under what conditions? where water is scarce and the washing of hands and the person is not even a daily institution. Dates contains stones to break the teeth if the eater is not watchful. The Banana Fig is free of seeds and stones, and all the operations of peeling the skins, placing the fruit on the trays to go in the drier, and then packing in boxes, are simple operations easily supervised, and all being done in a shed, surrounded with close mesh wire if necessary to keep out flies, and with plenty of spraying of a disinfectant around, this fruit can be depended upon to be also a hygienic food.

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SPANISH ORANGE TRADE.—It is stated that this trade is in a critical condition. In the full year prior to the war, Germany, Austria and Holland took between them about 155,000 tons of this fruit, the greater portion going to Germany. The chief consumers of Spanish oranges are England and France. who last year took altogether 510,000 tons. The rise in freight rates has affected the trade materially, and whereas early in 1914 the prices of oranges at the orchards was about 10s. per 1,000, it is stated to have since fallen to less than 5s. per 1,000.—*Fruit Grower*, London.

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SPRAYING MACHINES.—We have in stock some of the 4 gallon size of the Holder Pneumatic Spray Pumps. The demand was for a larger size when we had not got it but had the 2 gallon size; now we have none of the latter and consignments are difficult to get out

from London, all enquirers appear to want the small size. For spraying coconuts and cocoa however on a large scale, the large size serves best. These are all in brass alloy, which will stand the action of lime and sulphur wash, which the copper does not do.

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AUTHORIZED PERSONS.—Authorized Persons may be appointed on the nomination of Agricultural Societies by the Inspector General with the approval of the Governor; and the Agricultural Societies are responsible for seeing that their Authorized Persons act. It is not in the Law, but it was a recommendation from the Parent Society, that all Authorized Persons should be members of an Agricultural Society and report to the local Society or the Parent Society periodically as to the work done by them and on the state of Praedial Larceny in their districts.

Just as an Agricultural Society can nominate a man for appointment, it can also, on reasonable grounds, recommend that the appointment be cancelled.

* * * * *

It is further recommended that each Authorized Person should report on his work to his local Agricultural Society and get a Certificate for the work done signed by the presiding officer and Secretary whenever possible. Clerks of the Court must have some proof that the work claimed to be done, has been done, and such a certificate would save the Authorized Persons and the Clerks of the Courts much trouble and, perhaps, annoyance.

Where an Authorized Person lives at too great a distance to attend Meetings of a Branch Society regularly and report on the work he has done, he should send in a quarterly report stating whether he has made any arrests and report on the condition of his district as regards praedial larceny, and as to whether he has had any difficulty in getting due fees for work done.

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COCOA SHELLS.—The common practice by small settlers as well as many large estates is to fling down the empty cocoa pods in a heap or heaps just where the beans have been taken out, which is sometimes in the field among the cocoa trees or sometimes in the yard; often festering heaps of empty cocoa shells may be seen. Such heaps are more than waste: if only the waste of good manurial substance had to be considered it would be bad enough, but the disease engendering danger of such heaps of fermenting, festering, rotting pods, is very serious to growers.

All cocoa pods should be carried to the yard or some central place and all empty shells should be made up into a heap, covered with earth and a sprinkling of lime and also some trash so as to make, by and by, a good compost or manure heap, which can be used safely as a manure for any crop.

Where trees are very liable to disease, it pays to cart away the refuse (or excreta as it were) of the particular tree and use it on another crop. This is not always practicable, but it is not usually expensive or difficult to do on a cocoa plantation, large or small. It is not practicable with bananas and therefore all the more reason that liming should be a regular operation in banana walks where so much "trash" or vegetation is always lying on the soil or being ploughed or forked into the soil.

TREATING CORN BEFORE PLANTING.—A planter took us to task the other day and said that he had lost £20 through following our recommendation to pass all seeds before planting, especially country Corn and Guinea Corn, through a thick paste made of Kerosene and Wood Ashes. We replied that it was impossible that this could affect the seed prejudicially as it had been proved for many years and it prevents pests, such as ants and mice, from eating the germinating grains.

But not only that, we guaranteed that Corn can be steeped in Kerosene 5 to 10 hours and it will germinate all right. As a matter of fact we did this, as we have done it before, that is, steeped Corn in pure Kerosene for 5, 10 and 18 hours. All the grains germinated, although the 18 hours lot did not grow strongly.

We now notice the following in the Journal of the Board of Agriculture (England):—

"EFFECT OF TURPENTINE AND PARAFFIN ON THE GERMINATION OF TURNIP SEED.—It having been suggested that treatment of turnip seeds by soaking in turpentine or paraffin prevents, to some extent, the attack of turnip beetle when the turnip plant reaches the seed-leaf stage, this experiment sought to discover whether the germinating power of the seeds was hindered by such treatment.

Seeds were soaked for from one to twenty days in water or paraffin or turpentine and each sample afterwards germinated. Both paraffin and turpentine retarded germination as compared with water, but increased it as compared with germination of seeds not soaked at all.

The length of time the seeds were soaked did not appear to affect germination, although apparently a soaking of five or six days in turpentine and two days in paraffin gave the best results as regards rapidity and evenness of germination of the seeds treated."

Note the *days*: we only say *hours*. But simply passing the seed through the Kerosene and wood ash mixture is entirely harmless yet effective in keeping off pests.

WEEVILS.—These pests do not appear to attack Arrowroot stored in barrels, but they do attack Banana Meal. We find that Banana Meal keeps well enough in a dry climate, the only trouble being attacks of weevils—our experiments have not yet extended to a wet climate. Corn, we find, is more readily attacked by weevils than beans or peas generally, but Red Kidney Beans are more liable to attack than anything else, far more than cowpeas.

While corn, beans and peas can be treated with Naphthalene or Bisulphide of Carbon, Banana Meal cannot be so treated, unless it is well sunned and aired after treatment. But sunning and airing involve a considerable amount of work (which means expense) when it comes to a ton of meal.

We have in store here (where unfortunately weevils come in with different supplies of seeds and have to be killed out) large stocks of arrowroot amounting to, at least, 59 barrels. We have never found any of these, though stored for 9 months, to be attacked by weevils.

When grain that has been treated either with Bi-sulphide of Carbon or Naphthalene, is well aired, no smell or flavour is perceptible.

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RATS.—A correspondent writes:—"The E.X.O. has arrived safely, and I think the result is satisfactory as I have not seen any rats run-

ning about since I have been using it, nor have I lost any more chickens."

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RATS.—Those interested in getting rid of rats by the aid of a Virus (and some had great success in this way) will read the following from the Ratin Laboratory with interest:—

"We also desire to draw your attention to the fact that we have now placed on the market a liquid form of the Ratin No. 1. (bacterial culture) and Ratin No. 2 (a non-bacterial preparation) which have hitherto been in solid form, as it has been demonstrated in a series of official experiments that not only do the rodents more readily partake of the liquid form, but the percentage of mortality is appreciably higher. In addition, the liquid is very simple to prepare as it has only to be poured over the bread baits, and they are ready for immediate application. We have accordingly abandoned the solid form of Ratin in view of these facts, and we thought you would like to be acquainted with those developments. No change has been made in the liquid form for dealing with mice, and this remains as before. There is also no difference in the prices charged.

We take this opportunity of sending you herewith a copy of each of our newest pamphlets for your information and perusal together with Order Card, and shall appreciate a communication from you.

The Ratin Bacteriological Laboratory,
Windsor House, Kingsway,
London, W.C.

————:O:————

ONIONS.—A correspondent writes us as follows:—"Bermuda Onion Seeds I got from you turned out splendidly, some weighed 17 ozs. and a very superior quality onion."

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MARKET REPORTS.—Some of our readers ask why we do not publish Market Reports, that is, giving the prices of products in the large markets of the world—London and New York. This used to be done when the JOURNAL was published first and found to do more harm than good, as by the time the JOURNAL was in the hands of the readers the printed prices were out of date.

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CASSAREEP.—How many of our readers know what Cassareep is? From correspondence we have received, we are afraid a good many do not know and yet it has often been written about in past JOURNALS. It is a typical Jamaica product, and we shall say no more about it now until we gain a general idea from further correspondence how many do not know what it is and have never even heard of it. We ask the Secretaries of Branch Societies to enquire at their Meetings who knows about Cassareep and whoever knows about it should explain what it is. It is something that should be in use in almost every household.

WAR GIFTS.

SHIPMENT PER S.S. "CHAGRES", MAY 10TH, 1915.

PRESERVES.

Names.	Addresses.	Kind.	Quantity.	
Miss Sant	St. Andrew's School	Guava Jelly	12 jars	18 lbs.
	Half-way Tree			
Miss K. Fisher	Mandeville	Grape Fruit Marmalade	4 "	8 "
Mrs. C. R. Isaacs	Shooters Hill	Grape Fruit Marmalade	5 "	" "
		Orange Marmalade	4 "	13 "
W. V. Heron	Christiana	Grape Fruit Marmalade	1 "	2 "
Miss Small	Hone Bay	Guava Dolce	9 "	" "
		Guava Jelly	6 "	22 "
Mrs. M. Miller	Balaclava	Grape Fruit Marmalade	6 "	9 "
Mrs. Sanftleben	Lucca	Grape Fruit Marmalade	3 "	" "
		Orange Marmalade	9 "	18 "
		Guava Jelly	1 "	" "
Mrs. Bridge	Clovelly Rd., Kgn.	Guava Jelly	10 tins	7 "
Richmond Guild of Ladies,	per Sister Beatrice, Richmond.			
Mrs. C. Goffe	Highgate	Guava Jelly	11 jars	110 lbs.
Mrs. Foster	Richmond	Ground Coffee	1 "	5 "
Mr. Goodison	Richmond	Sugar	—	50 "
Mrs. A. A. Lewis	Alley	Guava Jelly	3 "	30 "
Mrs. Deerr	Half-way Tree	do	1 "	10 "
Mrs. F. Barnet Brown	Fairy Hill	do	2 "	20 "
Miss Olive Street	Fair Prospect	do	2 "	20 "
Mrs. R. F. Perkins	Claremont	do	2 "	20 "
Miss C. C. Davies	Montego Bay	do	1 "	7 "
Mrs. A. Roxburgh	Walkerswood	do	3 "	30 "
Mrs. L. Roper	Walkerswood	do	1 "	10 "
Mrs. A. E. Parke	Port Antonio	do	1 "	10 "
Mrs. C. R. Isaacs	Shooters Hill	do	2 "	20 "
G. Soltau	Kingston	do	4 "	40 "
A. S. McNeil	Windward Road, Kingston	do	1 "	12 "
Alf. Chinnon	Port Antonio	do	1 "	12 "
Mrs. H. C. McGilchrist	South Camp Road, Kingston	do	1 "	12 "
G. Soltau	Kingston	Grape Fruit Marmalade	8 "	96 "
Mrs. F. Leahong	Hanover St., Kingston	Grape Fruit Marmalade	5 "	60 "
Mr. Stephenson	1 Portland Road,			
to be sent to D. P. Stephenson,		Grape Fruit Marmalade	1 "	10 "
2nd Lieut. 1st Cheshire Regiment		Tamarinds	1 "	10 "

(CASES OF PRESERVES, CIGARETTES, ETC., SENT READY PACKED BY THE DONORS.)

Names.	Addresses.	Kind.	Quantity.	
Commander Hall,	Hector's River	Guava Jelly	1 case	24 jars
(To be sent to "Our Soldiers' Hospital.)				
Mrs. Wilson	Brown's Town	Cigarettes	1 case	13½ bxs (of 50 packs ea)
(To be sent to Miss M. Jeffrey-Smith, London, for distribution by her.)				
Messrs Tapley and Hendry	C/o Nathan & Co., Kingston	Cigarettes		9000
to be sent to Miss H. Scott Walker		Sweets		1 tin
Lady Supt. V.A.D. Hospital,		Preserves		60 jars
Withyham, Sussex		Coffee	2 cases	2 tins
		Cigars		200
		Sundry articles of clothing		

Per Mrs. Arch. Spooner Half-way Tree, Ja. The women of Antigua for the Belgian women. Sundry articles of clothing (be sent to Miss Simpson, Worthing Station, Sussex.

CITRUS FRUIT.

Names.	Addresses.	Kind.	Quantity.
Adam Roxburgh	Walkerswood	Oranges	40 boxes
W. H. Coke	Mandeville	Grape Fruit	15 "
		Lemons	15 "
J. H. McFhail	Bog Walk	Lemons	30 "
Thos. Powell	Mile Gully	Lemons	2 "
Miss E. E. Pratt	Old Calabar, East Queen St., Kingston	Banana Figs	30 boxes, 30 lbs.
J. D. Forbes	Albany	Honey	1 cask, 25 gals.
R. H. Forbes	Pratville	Honey	1 cask, 25 gals.

N.B.—The above list of Preserves is what was actually shipped. Several tins and jars which were sent to us at this office, had to be rejected as the preserves began to ferment and were unfit for shipment.

Also 5 boxes of Citrus Fruit out of the above list were too ripe for shipment, and had to be rejected. These were given to the Volunteers who sailed on the S.S. "Erymanthos."

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BRANCH NOTES.

UPPER ST. JOHN'S (St. Catherine).—The usual monthly meeting was held on Tuesday evening, 11th April. Mr. J. Horatio Nelson presided. There were present, The Agricultural Instructor and Secretary, fourteen members, and two visitors: who afterwards were elected members. The Secretary gave his report for the year ended 31st March. It was gratifying to know that the Branch has in hand £1 6s. 1½d to the credit of the Society. The Instructor moved: "That a list of the Authorized Persons of the Branch with the dates of their appointments, and number of occasions at which larceny was detected, and by whom should be prepared for next meeting." This was agreed to. The following resolution was agreed to: That in future the Secretary prepare a written report of the year's work. The Instructor spoke to the members about their bringing some matter to the meetings to make them interesting. The election of officers to serve for the year then followed. Rev. L. M. Beverley was re-elected President. Mr. E. Thos. Hamilton was re-elected Secretary, and the office of Treasurer was also given him. The Secretary's letter re Produce Protection Law came up for discussion. It was unanimously agreed on that there is no necessity to raise the License so long as proper precaution is taken as contained in No. 2, and in addition that extra care be taken by the Police in the inspection of the Produce Buyers' books. The Instructor spoke briefly about the recent lectures given at Hope, and mentioned that the Department of Agriculture is making arrangements to have two courses, one at each time of the Half-Yearly Meeting, so that Delegates attending the meeting may have the benefit. He also spoke in high terms of the President who was absent, thanking him for the valuable services he rendered to the Branch, and for giving free use of the building, etc., for the holding of the meetings. Twelve members paid in their subscriptions for the year. The roll was called.

E. THOS. HAMILTON, Secretary.

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GUY'S HILL (St. Anns).—The annual meeting was held at St. George's on Thursday, the 15th April. There were present: The Secretary, eight members, and Mr. Robt. Edwards (visitor) who was afterwards made a member. Mr. Chas. Irvine was moved to the chair. The election of officers resulted as follows: Mr. C. A. Hay, President; Messrs. P. C. Bell and S. A. Martin vice-Presidents; Mr. H. S. Allen, Treasurer; Mr. W. E. Watson, Secretary. It was moved and carried that the meeting closed and the unfinished business be dealt with on Friday, 23rd inst., at 6 p.m. The Society met on Friday, 23rd April to complete the business of the previous week. There were present eight members and the Secretary. Circulars from the Secretary of the Parent Society dealing with "Authorized Persons" new list of members, etc., were read, and there was much discussion on the first of these. It was generally felt that if more "Authorized Persons" were appointed there would be less praedial larceny and it was decided to nominate at least one person at the next meeting. The rules setting out the duty of "authorized persons" were read and some slips containing rules for payment were distributed. Mr. J. T. Lawrence, an "authorized person," reported that he had made no arrest recently, but he was sure that the fact of his being known to be an "authorized person" serves to prevent more frequent offences in his district. The Secretary was instructed to find out from the Secretary of the Parent Society whether there is the possibility of

securing a foreign market for pine apples, and also to know from the Instructor of the District whether it is possible to get some quick yielding cassava sticks. The President gave notice to move at the next meeting: That the hour for commencing be 6 p.m. The Secretary gave a report of the year's work, but the Treasurer being absent his report had to lie over.

W. E. WATSON, Secretary.

BUNKER'S HILL (Trelawny).—The annual and monthly meeting was held on the 27th April. There were present: The President, Mr. C. G. F. Robertson, the two vice-Presidents, the Secretary, 6 members, a number of visitors, and E. Arnett, Esq., Instructor, Mr. Rennie, the newly appointed Assistant Instructor for Lower Trelawny, and Mr. J. F. Thompson of Good Hope, who also became a member. Election of officers for new year took place. Mr. Arnett presided during election. On his suggestion all the old officers were re-elected. The President asked Mr. Arnett to address the audience. He encouraged the members to take more interest in the meetings and to attend more regularly. He also formally introduced Mr. Rennie as the Instructor, and mentioned specially Mr. Thompson of Goodhope, who is greatly interested in the branch, and had offered to give something for the best improvements to the holdings of the members. Mr. Arnett was then asked to work out a scheme for this prize holding competition. Mr. Rennie expressed the pleasure it gave him to be present, and promised to do his best for the members. He encouraged them to cooperate with him as much as possible. Mr. Thompson spoke encouraging words to the members, and nominated his two sons, Messrs. J. S. Thompson and H. Thompson, who were both unanimously elected members. The President thanked Mr. Arnett for coming over to introduce Mr. Rennie, and welcomed the new members. He said that with our new Instructor at work, and with the "American push" of the Messrs. Thompsons, the Society should be more prosperous in the future than it has been in the past.

W. A. WRIGHT, Secretary.

MAY PEN (Clarendon).—The monthly meeting was held on Wednesday, April 28th. There were present Messrs. S. M. DeRoux, President; T. B. Thompson, ten members, Mr. S. A. Schliefer, Instructor, and Mrs. Schliefer. The torrential down-pour an hour before the time for meeting was accountable for the small attendance. A vote of welcome was given to Mr. Schliefer after his illness. Mr. DeLeon explained that the sub-officers' Guide was not the book really required by Authorized Persons, but a copy of the instructions to Authorized Persons. Mr. Schliefer intimated that he understands instructions to Authorized Persons was under review by the Parent Society. Letter from His Honour Mr. Robert E. Noble was read regretting his inability to attend this meeting, but hoping to attend subsequent meetings. Mr. Noble was duly elected to membership; Mr. R. G. Rodlein was also elected a member. The awarding of the prizes in the recent corn-growing competition was next proceeded with. The amount available, £10 10s., was divided among the two classes of competitors, those from the hills forming one class, and those from the savannahs another. Five prizes were awarded each class, ranging from £2 down. Mr. Schliefer then gave an interesting lecture on corn-growing, after which a general discussion took place on the subject which was summed up in the following resolution:—Whereas the May Pen Branch of the Jamaica Agricultural Society is fully convinced that were suitable encouragement given by way of a more stable market, this Island is capable of producing all the corn required for its own use and with few exceptions the large consumers would take supplies of native corn in preference to any other were such supplies obtainable at convenience, and that the people naturally expect the Government to give preference to supplies of native grown produce: Be it resolved that the Jamaica Agricultural Society be asked—(a) To establish a depot for native corn somewhat on the same lines as arrowroot is now treated where regular supplies could be obtained by private individuals as well as by the Government institutions; (b) To impress upon the Government that native grown corn can be used in preference to any other by all Government institutions. The Circular from the Parent Society relative to the Produce Protection Law was read and discussed and suggestion No. 2 was adopted. Letter from Mr. George May was read thanking the Chairman and other gentlemen for the interest they take in the Society. The President, in reply, stated that while they were not agriculturists, they were interested in agriculture, as the wealth of the Island came entirely from that source. Mr. Rennalls gave notice that at next meeting he would move for the holding of a Local Show early in the following year. Mr. Schliefer intimated that the Clarendon Show will be held early in January. Mr. Rennalls pointed out that it will be necessary in future to divide the Clarendon Show between Chapelton and May Pen.

C. L. A. RENNALLS, Secretary.

DEESIDE (Trelawny).—The annual meeting was held in the Hastings School-room on the evening of the 28th April. The following were present:—H. Ramsden, Esq., President; twenty other members, three ladies, the Secretary, Mr. E. Arnett (Instructor), Mr. J. Rennie (Assistant Instructor) and a large number of visitors from the Bunkers Hill Branch and Mr. F. Arnett, jnr. Letters from the General Secretary were read dealing with the following: 1. Publication of Branch Notes; 2. The financial year of the Society; 3. The appointment of Mr. Rennie as Assistant Instructor for Lower Trelawny under the supervision of Mr. Arnett. The annual report of the work of the Branch was presented by the Secretary and adopted. The report shows that the Society has been steadily and efficiently carried on during the year. There has been a marked improvement in the attendance of members and visitors at the monthly meetings. Lectures, debates, and discussions on varied subjects of general and agricultural interest have helped considerably to enliven the meetings from time to time. Much is due to the strenuous efforts of the President in keeping the Branch together during the year. The Treasurer's report shows a balance of 17/- in hand. The election of officers for the ensuing year followed. The President, Secretary and Treasurer were re-elected. The Rev. T. B. Prentice was elected 1st Vice-President, and Mr. R. L. McKenzie second. Mr. M. Rennie, the newly appointed Instructor, was introduced to the meeting and received a hearty welcome. He addressed the meeting briefly. The next item on the agenda was an address by Mr. Arnett on "Co-operation" as he has seen it in Ireland. The speaker in his usual interesting manner introduced the subject, but as other business had taken up much of the time he was unable to go on at any length and promised to continue his address at the meeting in June. This concluded the business part of the meeting and a "social" was held consisting of songs and recitations, after which members and friends partook of the good things provided for the occasion.

R. R. MCBAYNE, Secretary.

CENTRAL ST. MARY (St. Mary).—The regular monthly meeting was held at Clonmel on April 29th, instead of the annual. Mr. J. A. Banks, President, presiding. There were present eleven other members and two visitors. The President apologized for his absence. Read correspondence from the Parent Society re Branch Notes, new list of members and affiliation fee, and Produce Protection Law; a discussion at the last Half-Yearly Meeting on the sale of cocoa pods in country districts. Answers to questions: 1. No. Not advisable to continue the Produce Law as at present for buying cocoa pods. 2. Recommend central factories in district or agents. 3. The raising of the license to a substantial sum would not be sufficient. Recommend that the purchasing of cocoa pods be confined to Central Factories. The annual meeting will be held at the Eliot Schoolroom on Thursday evening, the 6th May, at 7 p.m.

The annual meeting came off at Eliot on Thursday evening, the 6th May. Present were: Mr. J. A. Banks, President; Rev. H. B. Wolcott, the acting Secretary, eighteen other members and several visitors. The annual reports of Secretary and Treasurer were tabled, the latter showing a balance of £2 8s. 8½d. to the credit of the Branch. Both reports were adopted. The election of officers for 1915-16 resulted as follows: Mr. J. A. Banks, President; Messrs. C. G. Marzink, First Vice-President; F. A. Williams, Second Vice-President and assistant Secretary; M. L. McLean, Secretary; H. H. Taylor, Treasurer. Rev. H. W. Wolcott gave a lecture on agriculture, and dealt with the following: 1. Planting systematically and intelligently; 2. Reaping; 3. Co-operation in marketing good products, a principle which if not adhered to, will result in our own loss and ruin. A hearty vote of thanks was accorded Mr. Wolcott for his visit to the Branch and his instructive lecture. Mr. Thomas Barnett of Lewiston, Clonmel P.O., was recommended as authorized person for the Belfield district. The Secretary was instructed to send up the name of Mr. Barnette to the Secretary of the J.A.S. as recommended by the Branch. Nine members paid in their dues for the present year.

F. A. WILLIAMS, Actg. Secretary.

FRANKFIELD (Clarendon).—The annual meeting was held on April 30th. The meeting was a representative one. Besides the President, there were the two Vice-Presidents, the Instructor, Secretary and fourteen other members. The Circular from the Parent Society respecting the Produce Protection Law came in for a very lengthy discussion. The meeting, after voting, thought that to prohibit entirely the buying of "Cocoa Pods" would put a hardship on the trade, and to interfere with the liberty of the buyers in such a drastic manner would serve no useful purpose as it would not prevent the stealing of cocoa. Question No. 2 was thought more desirable. The president in his opinion thought that the establishment of a local factory would facilitate the curing of cocoa, and save the risk incurred during the

rainy seasons, and thus serve a useful purpose not only in the curing, but also in the purchasing. Question No. 3 : The meeting thought it was a difficult matter, as purchasers differ very much in their opinion in the mode of purchasing the article. At the same time it was deemed necessary that something ought to be done to safeguard the trade. The Instructor gave an interesting address pointing out the ways and methods of improving holdings, laying particular stress on the cultivation of corn and the result of the "Corn-growing Competition." He advocated some scheme for the encouragement of the industry, and gave as an instance the establishment of a depot where it could be stored. Great care should be taken in the selection of seeds for cultivation. The effect of this is very prominently shown on bad seeds during a drought. He would not restrict the selection solely to hybridized corn as he has from experience found that good native corn was just as productive if not more. We are too fond of belittling anything native instead of fostering it, and we should approach the Agricultural Society so as to have some organization established for the purchasing of corn at a remunerative price. Care should also be taken in the selection of animals. After this the President congratulated the Branch Society in coming successfully through another year, and after a short review of the work done, vacated the chair. The Rev. J. K. Phillips, one of the Vice-Presidents, was asked to occupy the chair during the election of a new President. Mr. McKay was unanimously re-elected President for the year, and the other officers *en bloc*. Subscriptions were received and after fixing the date for the next meeting (28th May) the meeting terminated. W. H. CLARKE, Secretary.

AEOLUS VALLEY (St. Thomas).—The yearly meting was held on Monday, May 3rd, 1915, in the Govt. Schoolroom. There were present 17 members and the 1st Vice-President. Secretary's report and the election of officers: Secretary's report reviewing the past, drought, war, hard times and the numberless difficulties which hampers the large and small man alike. He (the Secretary) was proud to say the instruction given by the Parent Society had not been in vain, for not less than 6 cane mills are in the district, and doing well. Planters are enlarging their fields, corn, potatoes, cassava and peas are also being grown. The officers were re-elected. Two members paid in their subscriptions in advance. The acting Chairman reported the results of his mission to the Lower St. David's Branch; he presented £1 12s. 8½d. as the share to this Branch. The Secretary asked Mr. Wm. Stewart to go with Mr. Barnett to Morant Bay and lodge this amount in the Govt. Savings Bank in the name of this Branch. Meeting closed by singing the National Anthem.

R. A. JONES, Secretary.

TROY (Trelawny).—The regular monthly meeting was held in the Troy School-room on Tuesday, the 4th day of May, 1915. There were present: The President, Vice-President, Secretary, Assistant Secretary and 6 other members. Arising out of the minutes, Mr. Carter moved with regard to the suggestion that the rules be printed, that at next meeting the rules be gone through and such alterations as may be necessary to suit local needs be then made. The Secretary read article from March JOURNAL, page 91, respecting worms in vams. The Secretary informed the members that the affiliation fee is now due, and the Secretary was asked to send it up.

T. PINNOCK, Secretary.

SPANISH TOWN (St. Catherine).—A meeting was held here on Wednesday, the 5th May. Present: Messrs. William Gentle (Actg. President), D. A. Aldred (V.P.), the Treasurer, the Secretary, 4 others and a visitor. Secretary reported the work done by Mr. T. G. M. Stewart, an "Authorized Person" and tendered an excuse for his absence. The Secretary mentioned that he had received a few copies in booklet form of the last report of the Half-Yearly General Meeting of the Parent Society. Decided to circulate them. The following communications from the General Secretary were read: (1) Requesting that Branch Notes be written concisely for JOURNAL. Noted. (2) *re* (a) new list of members; (b) affiliation fee and (c) JOURNALS unclaimed from time to time. Noted. (3) *re* Produce Protection Law. With regard to (3) it was resolved: "That the Spanish Town Branch of the Jamaica Agricultural Society is of opinion, in view of the prevalence of larceny of cocoa pods and the sale of immature cocoa pods by children and others and for protecting the cocoa industry of this Island, that the Produce Protection Law should be amended in terms of the joint suggestions contained in questions (2) and (3) in paragraph 1 of the Circular letter of the Jamaica Agricultural Society dated 29th March, 1915, i.e., by making it possible for only such persons to get a license to buy cocoa in the pods as can show that they have proper equipment to cure cocoa themselves, or are qualified responsible agents for other people who have proper equip-

ment, and further by raising the license money to a substantial sum." A vote of thanks also was accorded Mr. Gentle for the use of the meeting rooms. The meeting then adjourned.

EVERARD LOPEZ, Secretary.

ALBION MOUNTAINS (St. Mary.)—A meeting was held on Thursday, 6th inst. Sixteen members and four visitors were present. Mr. Hamilton, the 1st V.P., occupied the Chair. After informing the members that they had met that evening to appoint officers for the financial year, Mr. Hamilton vacated the Chair, and Mr. E. A. Thompson was voted to it. The following officers were elected: Mr. W. G. Hamilton (President), Messrs. E. A. Thompson and Ben. Ryfield (1st and 2nd V.P.'s respectively), Mr. Alex. Taylor (Treasurer), Mr. W. E. Morris (Secretary), Mr. G. A. Anderson (Asst. Secretary). Correspondence was read regarding circular from Parent Society which intimated that many members fail to call for the JOURNALS at the P.O., and thereby cause some inconvenience in that department; it was shown that the members of this Society are (with very few exceptions) always calling in due time for their JOURNALS. Mr. Hamilton said he took great exception to certain remarks that were made at a previous meeting during his absence regarding the prize money that was won by this Society at the Albany Show. "He had often called the men together, who had sent exhibits, that he may know their intention, whether they claim it (as it was theirs by right) or they would pass it over to the Society, but they had failed to meet." It must really be admitted that the remarks made of which Mr. Hamilton complained were altogether uncalled for and misleading. The President then urged the members to pay in their subscriptions early so that the minimum number may be reached at an early date.

W. E. MORRIS, Secretary.

CASTLETON (St. Mary.)—The annual meeting came off here to-day in the Ugly River Schoolroom at 3 o'clock p.m. on the 10th May. S. C. Pickersgill presiding, several of the ordinary members and the Secretary. The Secretary read circular from the Secretary of the Parent Society *re* "Produce Protection Law," dated 29th March, 1915. The Society was of the following opinion: With regards paragraph I., the Produce Protection Law should be amended so that only responsible persons with proper curing equipments to be examined and passed by the Agricultural Instructor or some one else so appointed) should be granted a pod license. Paragraph II. The raising of the license would not have the desired effect as it may in many cases keep out the honest buyer and give preference to the unprincipled man. With regards the other suggestions embodied in the circular, the Society respectfully refers the Secretary of the Parent Society to their resolution sent up on the 16th February, 1915. After the transaction of some minor items of business, the meeting proceeded with the election of officers for the ensuing year, which resulted as follows: Rev. James Robertson, President; Messrs. Jas. Hardy and C. E. Graham, first and Second Vice-Presidents; Messrs. Alfred Pickersgill and D. F. Barrett, Secretary and Assistant Secretary respectively, and Mr. Cephas Tait, Treasurer. The new President took his seat and thanked the members for again electing him to the post. The meeting came to a close in the usual way, after which the members retired to Mr. Tait's place for the usual banquet. Mr. G. O. Hanson represented the Scotts Hall branch.

A. PICKERSGILL, Secretary.

RED HILLS (Clarendon.)—A meeting was held on Thursday, May 13th, in the Schoolroom, at 5 o'clock. There were ten members present and Mr. S. A. Schliefer (Instructor). Correspondence from the Parent Society was read. A list of paid up members for April was presented, and those who have not paid are asked to come and pay in by May at the latest. It was suggested that some of the Society's money be spent in buying a breed of pigs for the improvement of our own in this district. Election of officers: Mr. Joseph Taylor was appointed President and Mr. John Lovelace and Mr. Henry Taylor, Vice-Presidents; other officers continue as there was no reason for exchanging. The Produce Protection Law was discussed and decisions arrived at were: Stealing of produce (cocoa) is raging in these districts. The Society begs that the public instead of police from a station that is far off, who does not know the people of that district, to overlook the produce buyers' books; it would be better to give the District Constables or the Authorized Person or any one whom the Inspector would think fit to overlook books, for they know people by name and seeing a name that they know who does not possess such produce, would be able to make enquiry how such person come by it, and if people know that such steps will be taken, we are of that opinion that cocoa stealing would be reduced to a minimum. The Instructor gave his address on plant disease and other things.

A. E. MILLS, Secretary.

The Journal

OF THE

Jamaica Agricultural Society.

The more people do the more they can do ; he who does nothing renders himself incapable of doing anything ; while we are executing one work we are preparing ourselves for undertaking another.

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No. 7.

BOARD OF MANAGEMENT.

The usual monthly Meeting of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 11 North Parade, Kingston, on Thursday, the 17th June, 1915, at 11.40 a.m. Present: His Excellency Sir Wm. H. Manning, K.C.M.G., C.B. (presiding); Sir Jno. Pringle, K.C.M.G., Hons. P. C. Cork, C.M.G., H. H. Cousins, D. Campbell, R. P. Simmonds, S. S. Stedman and J. R. Williams; Messrs. A. W. Douet, E. W. Muirhead, Adam Roxburgh, Archd. Spooner, and the Secretary, Jno. Barclay.

Apologies for absence were submitted from Messrs. R. Craig, H. Q. Levy, A. C. L. Martin, and the Rev. W. T. Graham, who were unable to attend owing to the heavy rains prevailing in their districts.

The Minutes of the previous Meeting having been printed and circulated, were taken as read and confirmed.

Matters arising out of the Minutes:—

(a) *Banana Commission*.—Mr. Muirhead moved the following resolution notice of which he had given at a previous Meeting of the Board:—

“Will the Government inform this Society if, at the time of sending the deputation to Canada *re* the war tax on bananas, the members of the deputation were instructed to endeavour to obtain only the reduction or removal of this tax or were they instructed to get a reduction on other productions upon which such tax, if levied, would be also a burden, or was it considered that bananas should be the only article that should be exempt?”

Mr. Muirhead said that he had also written to the Secretary asking what the value of importations into Canada were for Bananas, Citrus Fruits, and any other articles for which increased taxes for war purposes had been proposed to be placed. He had sent the Colonial Secretary also the following questions:—

“1. Has the War Tax in Canada been passed? and if so state upon which articles exported from Jamaica is it imposed, also state the rate on amount of tax.

“2. Give a complete list of the quantities of the following articles exported into Canada to December 31st, 1914, and the rates fixed by the Customs here upon some: coffee, cocoa, coconuts, bananas, ginger, pimento, sugar, grapefruit and honey.

“3. Inform me how the value attached to each article is arrived at by the Customs here in each case, if it is for the contents or materials only, or is the value of the package where packer is quoted, taken into consideration and valued also?

“4. Do these valuations vary, or are they the same from year to year, and if any variation in prices, how are they varied by the Customs here?”

The Acting Colonial Secretary wrote him on the 3rd of May last as follows:—
“I am directed by the Governor to acknowledge the receipt of your letter of the

23rd ultimo, asking for certain information which you require for use at the Agricultural Society's meeting, and in reply to transmit for your information, a copy of a memorandum and a statement which have been furnished by the Collector General to whom your letter was referred.

"I am to add that this Government has no information regarding the details of the War Taxes in Canada."

(From the Collector General to the Colonial Secretary):—

"Hon. Colonial Secretary.

"As to I., I can give no information.

"As to II. Memo herewith.

"As to III. Values of staple articles are fixed on information obtained from the chief shippers, quarter by quarter, in the case of other minor articles, the endorsement on the bill of lading rendered under section 118 of Law 18 of 1877 is accepted. In this list only the value of grapefruit has been obtained by the latter means. Values are F. O. B. All expenses up to time the goods are placed on board ship being included.

"As to IV. They vary, see above."

The following is the table prepared by the Collector General:

EXPORTED TO CANADA.

Coffee	..	1,677 cwt.	..	£3,495
Cocoa	..	4,083 cwt.	..	8,643
Cocoanuts	..	1,719,600 Nos	..	7,265
Bananas	..	Nil	..	Nil
Oranges	..	2,399,700 Nos.	..	2,885
Ginger	..	1,656 cwt.	..	2,630
Pimento	..	2,436 cwt.	..	1,248
Sugar	..	255,833 cwts.	..	163,094
Grape Fruit	..	12,380 pkgs.	..	4,389
Honey	..	2,548 gals.	..	270

Mr. Muirhead said that the public had had no information on these matters and that it might even appear to the public that the deputation had left Jamaica for Canada for an object that did not exist.

Mr. Stedman said that on a point of order, he did not think the Board competent to discuss a decision of the Legislative Council. The Council had decided on a certain point and he did not think that it should be criticised at this meeting.

The President agreed with Mr. Stedman; but stated that Mr. Muirhead was asking for information which he had not been able to obtain from what happened in the Council. He thought that Mr. Muirhead should receive the information. As they would all remember at the outbreak of the war, Canada looked around to find some means of finding revenue to meet her expenditure. One of these means was a tax on bananas arriving in the Dominion. The matter was brought before him by certain gentlemen interested in banana planting. First of all it was decided to send a cablegram to the Governor General of Canada pointing out that the imposition of the tax would very seriously affect the Jamaica banana industry. This question was also raised in the Legislative Council; and with a view of endeavouring to get Canada not to impose a war tax on bananas, it was decided to send a deputation to Canada. When this decision was reached, there was no idea of urging on Canada the reduction of the duty on certain articles exported from Jamaica to Canada, for it would not have been possible for Canada to reduce the import duties bearing in mind that she had to find all the money she could to meet her war expenditure. It was merely on account of Canada endeavouring to raise extra revenue that she decided at the outset to impose an extra tax on bananas. It was never suggested that the deputation should speak about taxes on other products from this colony. If such

a question had been raised he would have pointed out that such a proposal was inopportune, especially as Canada was raising revenue to meet her war expenditure. With regard to the returns which had been furnished to Mr. Muirhead, as they were aware, no bananas were shipped direct from Jamaica to Canada. The fruit was sent to New York and it went from there to Canada, so that was why no statistics had been given as to the shipment of bananas from Jamaica to Canada. As far as he was aware—and he was pretty certain of it—bananas were the only product of Jamaica on which it was proposed to impose a tax. No change had been made or suggested in respect to any other article exported from this island. It would have been wrong for them to ask Canada to take off the ordinary duty on products from this Island other than the proposed duty on bananas.

Mr. Stedman said the members of the deputation had been furnished with copies of the debates and schedules in the Canadian Parliament, and what His Excellency had said, was substantially correct.

Mr. Muirhead said he was satisfied with the explanation, and if he had got the information which he now got when he wrote the Colonial Secretary, there would have been no necessity for him to have raised the question that day. He thought that it would however, also satisfy the minds of a good many of the public.

(b) *Pod Rot & Canker of Cocoa*.—The Secretary submitted letter from Mr. Craig asking if the Board would be good enough to defer the discussion on Pod Rot & Canker of Cocoa until the next meeting, when he hoped to be present, as he would very much like to take part in the discussion. This was agreed to.

(c) *Banana Meal*.—The Secretary submitted Report of the Committee appointed to go into the matter of the utilization of bananas for making banana meal and report on same, as follows:—

The result of the examination at the Imperial Institute, of the sample of banana meal sent for report, is not very encouraging. Its nutritive value, as compared with wheat, flour and maize meal is very low:

	Nutrient Rates.	Food Units.
Banana Meal	.. 1 to 17.6	93
Wheat Flour	.. 1 to 5.6	117
Maize Meal	.. 1 to 9.	110

“Banana meal is like other dried fruit, probably a good addition to nitrogenous foods such as meat, wheat, oats, and pulse, and it is reputed to be very digestible, but it can only serve as a substitute for them to a limited extent. It is however, useful as diet for sick persons in certain cases. At present the most profitable way of disposing of bananas is that of selling them for export. The rejected and the small bunches are used for human or animal food, either as a fruit, or green as a vegetable.

“The question of the manufacture of banana meal and banana figs arises, in regard to surplus or unsaleable fruit, as a means of preventing waste, or obviating the reduction of prices below a point at which it might be profitable to resort to manufacture. Undoubtedly, however, consumption might be stimulated to the advantage of the producer, by presenting the banana in a new form preserved for storage.

“Ordinarily, in the past, the demand for fruit has been in excess of the supply. This condition, disturbed by the war, may be regained after its termination, in which case the supply for the manufacture of banana meal will be again restricted.

The prices of bananas as fruit for export range from £5 to £12 10s. per 100 bunches at different seasons, and for the best. It appears reasonable to appraise them at from 2/- to 4/- per cwt. delivered at a port or railway station.

“The annexed estimate, prepared by the Secretary, based on prices of 1/3 to

1/6 per cwt., presumably for surplus or rejected fruit, brings the cost of dried chips to 8/9 to 10/6 per cwt., and the cost of manufacture and barrelling 5/10 to 6/4, or a total for prepared meal of 14/7 to 16/10 per cwt., equal to 1.56d. to 1.8d. per lb.

In his annual report for 1913-14 (paragraph 12) the Collector General gives the quantity and value of wheat flour imported in 1913 and the average for the 4 preceding years: 1913, value per barrel of 196 lbs., 21/-, equal 1.28d. per lb., duty approximately .50d., equal 1.78d. per lb., 4 previous years, value per barrel of 196 lbs., 22/1½ equal 1.35d. per lb., duty approximately 50d., equal 1.85d. per lb.

These statistics show that in times of peace, the cost of wheat flour and banana meal would be approximately the same.

"In July last, the retail price of flour in Kingston was 2d. per quart. Since the war it has risen to 2¼d. per lb., an increase of nearly 40 per cent. While the war lasts, therefore, banana meal, if retailed at 1¾d. to 2d. per lb., might partially supplant wheat flour, since the latter is burdened with an import duty of approximately ½d. per lb., but it is very possible that if this should occur, the Government might find itself compelled to impose additional taxation to replace the loss on the flour duties. It is most probable, however, that the people will continue to consume bananas in their natural state, rather than in the form of meal and thus escape the cost of manufacture, which is very heavy, amounting to 60 to 66 per cent.

"The conclusion that the Committee have arrived at, is that banana meal can only be regarded as a fancy article of diet, not likely to command a large market, and that the cost of manufacture enhances the price to so great an extent, that it is only under most exceptional circumstances, that any hope can be entertained of bringing it into consumption, as a commercial product locally. (This conclusion does not refer to countries where fresh bananas are not so cheap as here, i.e., in the markets of Europe and North America where banana meal or flour may be appreciated as a desirable food for infants and invalids). But that in cases where the members of a family undertake the manufacture, the utilization of bananas to make meal in periods when bananas are very plentiful and cheap to prevent waste, and provide a store of food always ready at hand, for use in the household when other food is dear, is recommended as a useful economy.

"A foreign trade in dried banana chips is already in existence and may be susceptible of some expansion.

(Sgd.) "P. C. CORK."

The report was tabled.

(d) *Sugar*.—The Secretary said that at the previous Meeting of the Board a letter from the Secretary of the West India Committee had been read submitting a resolution passed by the Executive of that body in London, and asking the Board to support it. The following is the resolution:—

"Whereas in the year prior to the outbreak of the present war, the United Kingdom was dependent on foreign countries for no less than 95 per cent. of the sugar supply, and whereas in the opinion of this Committee an adequate supply of sugar could be produced within the British Empire to meet the requirements of the Mother Country, be it resolved: "That it is desirable that British produced sugar should, for a period of not less than ten years, be accorded such preferential treatment as would suffice to encourage the development of both existing and potential sources of sugar supply within the Empire; and that His Majesty's Government be urged to take the necessary steps to bring this about."

It was decided to leave over the matter for discussion at the following Meeting, and then consider the previous communication submitted by the West India Committee, which had been referred to the Staple and Minor Products Committee, who had submitted a resolution to the Board in January, but which it had then been resolved to leave over for six months as at the time—January—it was considered that nothing should be done to hamper or incommode the Imperial Government in any way.

The President said he thought they should now deal with the matter, as in view of conditions now existing, it would be most opportune to send forward a resolution. There was now such a strong feeling against everything German that the opportunity should be taken to ensure that Germany would not be allowed to have any monopoly of trade in the future.

It was decided to approve of the resolution submitted by the West India Committee, and that the matter should be referred to the Staple and Minor Products Committee with a recommendation that they frame a resolution as from the Jamaica Agricultural Society urging that preferential treatment be given by the Mother Country to sugar coming from the British Colonies. If the matter could be considered before the next Meeting of the Board, the Secretary was instructed to send forward the resolution as it came from the Staple and Minor Products Committee without waiting for reference to the Board.

The following letters from the C.S.O. were submitted:

(a) *Re Leaflets on the War.*—

No. 6329-5440.

12th May, 1915.

"I am directed by the Governor to inform you that a supply of the leaflets noted in the margin, (copies of which are attached) prepared by the Victoria League, has been obtained through the Crown Agents for the Colonies for distribution in Jamaica.

2. A portion of these leaflets have been distributed by the Director of Education amongst the Elementary Schools of the Island, and His Excellency thinks it would be a good plan to distribute the remainder to the local Agricultural Societies. The leaflets are at present in the hands of the Superintendent of the Government Printing Office, who has been instructed to forward them to you for this purpose on your application to him.

3. These leaflets, I am to add, have already been paid for and no charge will be made for them by the Government."

(Sgd.) G. M. WORTLEY,
Actg. Asst. Colonial Secretary.

The Secretary said he would send a few of these to the Secretaries of Branch Societies so that extracts from them might be read at some of their Meetings.

(b) *Re Flogging in Trinidad.*—

No. 7315-7794.

8th June, 1915.

"With reference to the letter from this office, Nos. 5247-5597, dated the 23rd April, 1915, I am directed by the Governor to acquaint you, for the information of the Jamaica Agricultural Society, that on enquiry of the Governor of Trinidad, His Excellency reports that he considers that sentences of flogging have had a deterrent effect on the crime of praedial larceny in that colony and have proved to be the most effective way of stopping it.

"I am also to enclose for the information of the Jamaica Agricultural Society copies of a minute by the Crown Solicitor, Trinidad, in the matter of a return relating to cases of praedial larceny in that colony, for the period 31st August, 1914, to 31st March, 1915, and a statement of the cases in which the sentence has been carried out."

(Sgd.) ROBT. JOHNSTONE,
Actg. Colonial Secretary.

MINUTE BY THE CROWN SOLICITOR, TRINIDAD.

The Hon. Acting Colonial Secretary wrote: "I have consulted the Attorney General, by section 18 of Ordinance No 5, a Magistrate may order corporal punishment to be inflicted in the case of any male under the age of 16 who is convicted of stealing any sugar cane, cocoa tree, coffee tree, any fruit, vegetable or other praedial production or any cultivated root or plant used or capable of being used for the food of man or beast or for medicine, distilling or dyeing, or in the course of manufacture.

"By section 33 of Ordinance No. 8 of 1909, the Court may order corporal punishment in the case of a male convicted for the first time of the larceny of any produce or of being accessory to the larceny thereof or of being the receiver of stolen produce.

"On a second or subsequent conviction for larceny of produce, the Court shall order corporal punishment.

"The term produce includes cocoa, coffee, nutmegs, kola nuts, tonca beans, rubber, sugar, cane, coconuts, and provisions.

"Ordinances 107 and 241 regulate the methods of administering corporal punishment.

(Sgd.) "A. D. O'CONNOR,
"Crown Solicitor,
"26/2/15."

The returns show that the cases of praedial larceny brought into the Courts of Trinidad and Tobago from the 31st August, 1914, to the 31st March, 1915, were 295, of which there were 203 convictions, and 24 offenders flogged.

Mr. Campbell said that in his opinion flogging was no deterrent for Praedial Larceny; besides women were greater thieves than the men and they would not be flogged. He quoted cases of men having been flogged three times and still they came back before the Court for Praedial Larceny. Some other remedy like making the thief pay, would require to be found.

Mr. Cork said that from actual statistics here, flogging had been no deterrent to the praedial thief.

Mr. Roxburgh said that the small cultivators were those who suffered most from the praedial thief, and if they asked 99 out of 100 of these poor people who were robbed what should be done with the praedial thief, they would say flog him; but flogging would require to be carried out on a different system if it was to have the desired effect. It was no use flogging a man and then putting him in a hospital for the wounds to recover.

Mr. Simmonds said that when the Law for flogging was first introduced in Trinidad, the Governor had first to give his consent before the thief could be flogged. The then Governor was in favour of flogging, and the result was that Praedial Larceny almost ceased. The next Governor, however, was against flogging and Praedial Larceny again became prevalent. Most of the Magistrates in Jamaica would not order flogging, but in his opinion it should be made compulsory and it would have the desired effect.

Mr. Spooner said that only the severest measures could stop Praedial Larceny; he had been in Mexico and there was no Praedial Larceny there because thieves were afraid of being shot. He was not advocating that a poor and weak wretch who stole anything for the purpose of keeping soul and body together should be flogged, but those able-bodied men who subsisted by plundering other people's fields ought to be flogged, and flogged liberally.

Mr. Williams was of the opinion that flogging had not been given a fair trial. He did not wish to see an increase of flogging, but it should not be left to the idiosyncracies of a local Magistrate whether a thief should be flogged or not. Under the present Law, a thief could not be flogged for his first offence. He thought it would be better to flog him for his first offence and not send him to jail where he would be mixed up with other criminals and come out more versed in the art.

The President asked why the Resident Magistrate would not order flogging.

Mr. Cork replied that it had been discouraged by the Government because it had not been found to be successful.

Sir Jno. Pringle said he had been a medical attendant at a Prison Hospital some years ago and he knew the overtures to escape flogging that people made when sentenced: in his opinion flogging acted as a great deterrent. In the large number of cases the persons who did the actual stealing were men; the women carried home the stolen property and the children were sent to sell it.

Mr. Roxburgh asked if the Secretary would get a Statement showing the number of convictions in the different parishes where flogging had been ordered, and the number of persons again arrested who had had flogging administered to them before. The Secretary was instructed accordingly.

Prize Holdings Competition.—The Secretary submitted the Judges Report on the Small Holdings Competition in St. Mary. The Competition had been very successful indeed and arrangements had been made to have public meetings for the distribution of the Prizes the following week if the Board approved. His Excellency, he understood, had arranged to attend some of the meetings and to distribute the Certificates and the cheques for prizes. The report was adopted. (This report is published on another page.)

Half-Yearly General Meeting.—The Secretary said it was usual to hold the Meeting of the Board of Management the day before the ordinary date for that Meeting, to leave the third Thursday of the month clear for the Half-Yearly General Meeting. The Instructors Committee, however, had always held their Meeting on the morning of the General Meeting, but this did not give him an opportunity to meet the delegates and to prepare for the Meeting. He had suggested to the Instructors Committee that they might also hold their Meeting on the Wednesday previous to the General Meeting. They were agreeable. He would suggest therefore, for the Board to approve, that the Instructors Committee should meet on Wednesday, the 14th July, at 11.40 a.m., and the Board of Management at 2 o'clock p.m. the same day. This was agreed to.

Locusts.—Mr. Roxburgh asked whether they had noticed that there was a plague of locusts in Costa Rica which were eating up the vegetation including the bananas there, and he asked whether there was any chance of their coming to Jamaica.

The Director of Agriculture said that the range of the flight of the locusts was too limited to enable them to fly over the sea to Jamaica, and they could hardly be brought here in any way other. In addition, however, there was a strict Law regarding importations from Central America in vogue—even labourers boots had to be steeped in Jeyes for half an hour. They had a large quantity of Paris Green in stock at any rate to deal with such pests if they ever came here.

Free Railway Certificates for Board.—Mr. Muirhead asked leave to bring up a matter concerning the tickets issued for the Board of Management. They were return tickets, but under the condition that they could not return the same day without paying an extra charge. This did not apply to 1st Class tickets. If he wanted to return the same day by the 4.15 train, as he did want, he had to pay a fee.

Instructors Reports.—The Instructors Reports for May were submitted and directed to be circulated to the Instructors Committee as usual.

Statement of Accounts was tabled.

New Members.—The following new members were elected:—

A. Watson Taylor, Lucea.

R. A. Manton, Mandeville.

The Meeting adjourned.

PROTECTION FROM DISEASE PLANTS LAW,

LAW 3 OF 1915.—A LAW TO PREVENT THE INTRODUCTION AND SPREAD OF PLANT DISEASE.

We publish the whole of this Law which now takes the place of the similar Law entitled "The Infectious Diseases of Plants Law." The above is now the proper title of the Law in force. In last month's JOURNAL we published the Orders made under this Law for dealing with certain plant diseases: (1) Panama Disease of Bananas; (2) Bonnygate Disease of Bananas; (3) Bud Rot Disease of Coconuts.

[24 th March, 1915.]

Be it enacted by the Governor and Legislative Council of Jamaica as follows:—

1—This Law may be cited as the Protection from Disease (Plants) Law 1915.

2—The Diseases of Plants Law, 1911 (Law 35 of 1911) and The Protection from Disease (Plants) Law, 1912 (Law 17 of 1912) are hereby repealed; provided that such repeal shall not affect any appointment made under the provisions of the said Law 35 of 1911 or any Order issued under the provisions of the said Law 17 of 1912.

3—In this Law the following expressions have the meanings hereby assigned to them, that is to say

"Plant" includes any tree, plant, root herb or grass, or part thereof respectively.

"Plant Disease" includes any condition conducive to the deterioration or destruction of any plant or part of a plant whether such deterioration or destruction be due to disease, insects, blight, fungus or any other cause and whether communicable or not.

"Notifiable Plant Disease" means any plant disease which the Governor in privy Council by notice published in The Jamaica Gazette has declared to be a notifiable plant disease.

"Infectious Plant Disease" means any plant disease which the Governor in Privy Council by notice published in The Jamaica Gazette has declared to be an infectious plant disease.

4—(1) It shall be lawful for the Governor from time to time by Orders to be published in The Jamaica Gazette to

- (a) declare any district, area or parcel of land described in the Order to be infected with plant disease or suspected of being infected with plant disease.
- (b) prohibit absolutely the importation into the Island from any country or countries named in the Order of plants, articles or things whatsoever to be named in the Order which in the judgment of the Governor are likely to be a means of introducing or spreading plant disease in the Island.
- (c) prescribe the isolation by means of fences of any description, ditches or otherwise of any district, area or parcel of land or of any portion of such district, area, or parcel of land which shall by the same or any other Order have been declared to be a district, area or parcel of land infected or suspected of being infected with plant disease.
- (d) prescribe or regulate the destruction or removal, uprooting, disposal or treatment of plants and products of a vegetable nature within a district, area or parcel of land declared by the same or any other Order to be infected or suspected of being infected with plant disease.
- (e) prescribe and regulate the cleansing and disinfecting of any district, area or parcel of land declared by the same or any other Order to be infected or suspected of being infected with plant disease together with any plants thereon.
- (f) prescribe the period within which it shall not be lawful to plant or replant with any plant whatsoever or with any particular plant named in the Order the whole or any portion of any district, area or parcel of land declared by the same or any other Order to be infected or suspected of being infected with plant disease.
- (g) prohibit or regulate the movement or despatch of persons and animals and the removal and carriage of earth, soil, manure, vegetable products or other things in into or out of a district, area or parcel of land declared by the same or any other Order to be infected or to be suspected of being infected with plant disease.

- (h) regulate the duties of persons appointed to carry out the provisions of any Orders issued under this Law.
- (i) Declare any plant disease to be a notifiable plant disease.
- (j) Prescribe the measures to be taken for the treatment of any notifiable plant disease or any infectious plant disease by the owner, occupier or person having the charge or management of any land whether the land shall or shall not have been declared to be infected or suspected of being infected with plant disease.
- (k) Generally make provision for the purpose of preventing the introduction and spread of plant disease or of any particular plant disease named in the Order.

(2) The Governor instead of absolutely prohibiting the importation of any plant article or thing may by Order prescribe the conditions under which alone the importation of any plant, article or thing shall be permitted.

(3) The Governor may at any time revoke or vary any Order or any part of any Order issued under this Law.

(4) Any Order issued under this Law shall be of the same effect as if it were contained in this Law and shall be judicially noticed.

(5) Any Order issued under this Law shall come into operation on publication in The Jamaica Gazette or at such other time as may be named in such Order.

5—Any plant, article or thing coming from any country, the importation from which is for the time being absolutely prohibited, and any plant, article or thing coming from a country, the importation from which is allowed on conditions only, until and unless such conditions shall have been complied with to the satisfaction of the Principal Officer of Customs at the port of arrival shall be deemed to be prohibited goods within the meaning of the Laws relating to Customs; and any such conditions shall be deemed to be restrictions within the meaning of the said Laws.

6—So long as any Order as aforesaid is in force, any plant, article or thing coming from parts beyond the sea may be deemed to have come from a place the importation from which is prohibited as aforesaid, and may be treated accordingly, unless the Importer satisfies the Principal Officer of the Customs at the port of arrival to the contrary.

7—It shall be lawful for the Governor to appoint persons to carry out the provisions of this Law and of any Orders issued thereunder and the Governor may by Warrant direct payment out of the Public Treasury of the remuneration and expenses of all such persons and of any other expenditure that may in the discretion of the Governor be deemed to be necessary for the purposes of this Law.

8—(1) Any person appointed under the provisions of the next preceding section may with such assistance as may be necessary enter upon any land whatsoever (whether the same shall or shall not have been declared to be infected or suspected of being infected with plant disease) and there examine any plant, article or thing and dig up the ground and fell, lop, dig up and take away any suspected or infected plant, article or thing, and do all such other acts and things as may be expedient in order the more effectually to ascertain whether the said land or any plant thereon is infected with plant disease and may search for any plant disease and do any act or thing whatsoever in order to give effect to any Order issued under the provisions of this Law and may with the approval of the Director of Agriculture destroy the causes, to be determined by the Director of Agriculture, of any plant disease.

(2) For the purposes of this section any person so appointed as aforesaid shall have power to pass over any adjoining or intervening lands.

9—(1) Every owner or occupier and every person having the charge or management of land who knows or suspects the existence of any notifiable plant disease on the land of which he is owner or occupier or has the charge or management shall with all practicable speed give notice in writing to the Director of Agriculture of the fact of the land or of any plant thereon being so infected or suspected and shall in such notice give all information in his power as to the extent and nature of the disease. The said notice shall be served personally on the Director of Agriculture or shall be addressed to him by registered post.

(2) Where the occupier of or the person having the charge or management of land is charged with an offence under this Law he shall be presumed to have known of the existence of the disease, unless and until he shows to the satisfaction of the Court that he had not knowledge thereof, and could not with reasonable diligence have obtained that knowledge.

10—If the owner or occupier or person having the charge or management of any land fails to carry out any measures required to be carried out by him under any Order issued under this Law the Director of Agriculture, or any person authorised by him in writing, may enter on such land and may carry out any measures required to be carried out under the said Order and the cost of carrying out any

such measures shall be recoverable from such owner occupier or person as the case may be at the suit of the Director of Agriculture, or any person authorised by him in writing, as a civil debt before the Resident Magistrate for the Parish in which such land is situate.

11—If any person without lawful authority or excuse, proof whereof shall lie on him, does any of the following things he shall be guilty of an offence against this Law

- (1). If he does anything in contravention of this Law or of any Order issued under this Law or of any rule made under this Law or fails to carry out any measures required to be carried out by him under any such Order or rule.
- (2). If he fails to give any notice which by this Law he is required to give.
- (3). If he refuses to any person acting in execution of this Law or of any Order issued thereunder admission to any land, or place which the said person is entitled to enter or examine or obstructs or impedes such person in so entering or examining or otherwise in any respect obstructs or impedes any person in the execution of his duty under this Law or assists in any such obstructing or impeding

and he shall on summary conviction before a Resident Magistrate be liable to a fine not exceeding Fifty Pounds and in default of payment to imprisonment with or without hard labour for any period not exceeding three months and on a further conviction within a period of twelve months for a second or subsequent offence against this Law he shall be liable in the discretion of the Court to be imprisoned for any term not exceeding six months with or without hard labour in lieu of the fine to which he is liable.

12—(1) Whenever by Order issued under this Law any parcel of land has been declared to be infected with plant disease it shall be lawful for the Governor (after such enquiry as he may deem necessary) by Proclamation to be published in The Jamaica Gazette to declare that the said land or any portion thereof has been acquired and also any land which in the opinion of the Governor is required for the purpose, of ingress, egress and regress to and from the land so declared to be infected or for the purpose of diverting any roads or paths public or private or any parts thereof adjoining or passing through or near the land so declared to be infected and thereupon the land described in such Proclamation shall vest in the Colonial Secretary of Jamaica, his successors and assigns for the use of the Government of Jamaica.

(2) The owners and occupiers of and all other parties interested in any land acquired under this section shall receive such compensation as may be fixed by agreement or by the arbitration of two arbitrators under "The Arbitration Law, 1900," so nevertheless that in no case shall the total amount of such compensation exceed the value of the land as appears in the Valuation Roll settled under Law 3 of 1911, entitled "A Law to consolidate and amend the Laws relating to the valuation of Real Property" and any law amending the same.

(3) Where only a portion of the land described in the Valuation Roll is acquired the valuation of the entire holding set out in the said Roll shall be used as the basis for assessing compensation in respect of the portion acquired.

(4) Any rent due in respect of any land acquired under this section shall be dealt with as if it had accrued from day to day and shall be paid to the person entitled to receive the same up to the day of the date of the Proclamation referred to in sub-section 1 of this section and shall thereafter cease.

(5) If any public or private rights of way exist over any land acquired under subsection (1) of this section the Governor may if in his discretion he so thinks fit by Proclamation declare the same or any of them to be determined and thereupon such public or private rights of way as are described in the Proclamation shall cease and determine.

(6) The Governor when he is satisfied that infection of plant disease no longer exists upon any land acquired under subsection (1) of this section may, if in his discretion he so thinks fit, at any time by Proclamation published in The Jamaica Gazette restore to any owner receiving compensation as aforesaid or to any person claiming by, from, through or under such owner any land so acquired upon repayment by such owner or person of the amount awarded as compensation and thereupon the land described in such Proclamation shall vest in the person named in such Proclamation for such estates and interests as are set forth in the said Proclamation.

(7) The Colonial Secretary shall with all practicable speed forward a copy of every Proclamation issued under sub-sections (1) and (6) of this section to the Deputy Keeper of the Records for record in the Island Record Office or to the Registrar of Titles for registration if the land has been brought under the operation of the Registration of Titles Laws, and the Deputy Keeper of the Records or the Registrar of Titles, as the case may be, shall, without any fee, record or register, as the case

may be, such Proclamation and in the case of a Proclamation issued under sub-section (6) of this section the Registrar of Titles shall without any fee issue a fresh Certificate of Title to the person in whom the land vests by virtue of such Proclamation and for the estate or interest acquired by such person.

(8) Every Proclamation issued under sub-sections (1) and (6) of this section shall for the purposes of land under the Registration of Titles Laws be deemed to be a transfer within the meaning of the said Laws and the Registrar of Titles may for the purposes of this section enforce delivery of any certificate of title as if the same were required for the purposes of section 124 of the Registration of Titles Law 1888 (Law 21 of 1888).

(9) The Director of Agriculture may with the approval of the Governor take possession of and hold for a period not exceeding five years any parcel of land declared by Order issued under this Law to be infected with plant disease and shall in such case pay monthly, quarterly, half-yearly or yearly as the Director of Agriculture may determine, rent to the person for the time being entitled to receive the same at a rate to be determined by the Director of Agriculture not exceeding one pound per annum per acre; Provided that any parcel of land less than one acre may in the discretion of the Director of Agriculture be dealt with for the purposes of rental as one acre.

13—The Colonial Secretary may, if in his discretion he so thinks fit, cause any land acquired under the next preceding section to be fenced and the Governor may by Warrant direct payment out of the Public Treasury of the cost of such fencing and no occupier of adjoining land shall be liable to bear any part of the expenses of erecting such fence under the Dividing Fences Law 1888 (Law 14 of 1888).

14—No prosecution for an offence under this Law shall be instituted except by or with the consent of the Director of Agriculture.

15—Any person charged with an offence against this Law may if he thinks fit tender himself to be examined on his own behalf, and thereupon he may give evidence in the same manner and with the like effect and consequences, as any other witness.

16—(1) The Governor may make rules for the purpose of more effectually carrying out the provisions and objects of this Law.

(2) Rules made under this section shall have the same effect as if they were contained in this Law and shall be judicially noticed.

(3) Rules made under this section shall come into operation on publication in The Jamaica Gazette or at such other time as may be named in such rules.

17—For the purposes of this Law the decision of the Director of Agriculture as to the presence or identification of any notifiable plant disease or infectious plant disease shall be final.

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THE COCONUT INDUSTRY.

(Continued from Last Month.)

Feeding Trials with Coconut Cake and Meal.

Coconut cake, which is left after expression of the oil from copra, is of value as a cattle food, either as such or when ground in the form of meal. The cake is usually of a pale brown colour. It has a pleasant nut-like smell and taste, and is readily eaten by all classes of animals. It is used largely in Germany as a feeding stuff for livestock, but owing to its relatively high price in that country it is generally given only to milch cows.

Numerous feeding experiments with the cake or meal have been carried out in Germany, the United Kingdom, and elsewhere. In the case of milch cows the results almost without exception show that feeding with coconut cake increases the percentage of fat in the milk; its precise effect on the milk yield, however, seems to be in some doubt. Hansson, in commenting on the results of feeding trials reported from several sources, concludes that coconut cake tends to increase milk secretion, and as a result of experiments carried out on milch goats in Germany it was concluded that the cake contains substances which exercise a stimulating effect on the mammary glands. Experiments carried out at the South-Eastern Agricultural College, Wye, however,

showed that when coconut cake replaced other concentrated foods the quantity of milk produced was slightly decreased and similar results were obtained at the Midland Agricultural and Dairy College, Derby. In the latter experiment eight cows were fed on rations containing either coconut cake, undecorticated cotton-seed cake, or linseed cake. The total milk yield from the eight animals fed for a fortnight on each cake were as follows:

Linseed cake, 2,472½ lb.; Coconut cake, 2,429 lb.; Undecorticated cotton-seed cake, 2,428½ lb.

In these experiments, the live-weight increase was greatest during the period when coconut cake was used, whilst the butter produced during this period was better flavoured, of firmer texture, and appeared to possess better keeping qualities than in the other cases, whilst the results are stated to have been financially in favour of coconut cake. The fact that coconut cake tends to produce a firm butter was also proved in the feeding trials at Wye and in experiments in Germany. Coconut cake should therefore be of special value for feeding to milch cows during warm weather and for use with foods, such as crushed oats and maize, wheat bran, rice meal, all of which tend to produce a soft butter. The quantity fed to milch cows should not exceed 4½ to 5 lb. per head per day, as larger quantities tend to produce a hard butter with tallowy taste.

According to the *Report of the Agricultural Experiment Station, California*, for 1895-96, coconut meal is "a much valued concentrated food and is finding more favour every year with the dairymen of California. Whilst not rating as high in flesh formers as either linseed or decorticated cotton seed meal, it appears in many cases to be more relished by the animals."

The feeding value of coconut cake as compared with linseed cake for fattening cattle was investigated by the Edinburgh and East of Scotland College of Agriculture in 1911-12. Each cake was fed at the rate of 4 lb. per head per day, the basal ration consisting of 4 lb. Bombay cotton cake, 90 lbs. swedes, and 12 lb. oat straw. All the animals, with one exception, ate the coconut cake readily after it had been steeped in twice its weight of water, and this one exception took the allowance in the dry form quite readily. The beef produced was of high quality. From the results of the experiments it is concluded that the consuming value of coconut cake (*i.e.* the market value less the value of the manurial residues) is 62.6 per cent. of that of linseed cake.

Coconut meal forms a valuable food for pigs and can be used with advantage to counteract the effect of other foods which tend to give a soft oily bacon. It is already used very extensively in some parts of Ireland for pig-feeding, but experiments carried out by the Department of Agriculture for Ireland in 1909-10 seemed to indicate that coconut meal is not worth the extra price paid for it over and above the price of the ordinary meals generally used for this purpose.

Coconut meal has also been shown to be of value for feeding horses. Experiments conducted by the French War Department some years ago showed that coconut meal was equal or even superior to the same weight of oats, whilst satisfactory results were obtained in the United States with yearlings and heavy-work horses, when either one half or the whole of the oats in the ration were replaced by an equal weight of a mixture consisting of two parts coconut meal and one part ground nut meal.

From the results of the numerous feeding trials referred to in the preceding pages, the following conclusions may be drawn:

1. Coconut cake forms an excellent feeding-stuff for milch cows, when fed at the rate of $4\frac{1}{2}$ lb. to 5 lb. per head per day. It tends to produce a firm butter and is thus especially well suited for feeding during warm weather and to counteract the effect of feeding stuffs which tend to give a soft butter. The results so far as its effect on the milk yield is concerned appear to be inconclusive, and further trials to elucidate this point are necessary.

2. The cake may be safely fed to fattening cattle at the rate of about 4 lb. per head per day, without detriment to the animal or the quality of the meat.

3. The meal is suitable as a food for pigs, but owing to its relatively high price compared with meals usually used for pig feeding, it is doubtful whether it could be employed profitably for this purpose.

4. With regard to the feeding value of coconut meal for horses, it has been shown that it can replace an equal weight of oats in a ration without adversely affecting the animal.

*Composition and Value of Coconut Cake as compared
with other Feeding-Cakes.*

In comparing the value of different feeding-stuffs, it is necessary to ascertain their composition, digestibility, "productive value," and the value of the manurial residues arising from their consumption. This subject is fully dealt with in *Leaflet No. 74 Bd. of Agric. and Fisheries*, and only the salient points are considered here.

The constituents of a feeding-stuff comprise water, crude proteins (albuminoids), fat, carbohydrates, crude fibre, and ash.

Water.—In the case of oil-cakes the amount of water present is of importance, as most of them easily undergo decomposition if they contain more than about 14 per cent. A good cake should contain about 10 per cent. of water.

Crude Proteins.—Under this heading are included all the nitrogen-containing substances, the most important of which are the true proteins, whose chief function in the animal economy is to supply material for the formation of flesh or muscle. Proteins also help to maintain the heat of the animal and to supply energy, and any excess may be employed in the production of fat. The "crude proteins" also include small quantities of amides. The latter are greatly inferior in feeding value to true proteins; but as they are present only in very small quantities in oil-cakes, they can be left out of consideration in estimating the value of the latter, and the whole of the nitrogen-containing substances may be regarded as flesh-formers for present purposes.

Fat.—The chief function of fat is to supply heat to the animal body, but when sufficient has been consumed to maintain the temperature of the body, fats may be converted into animal fat, and so increase the body-weight.

Carbohydrates.—This term includes starch, sugar, mucilage, and some other similar substances. They are the most important sources of animal heat and energy, but for the former purpose fat is nearly two and a half times as valuable, weight for weight. When fed in large quantities the carbohydrates are capable of producing animal fat.

Crude Fibre.—This includes substances of a more or less woody nature, and consists essentially of cellulose mixed with highly indigestible matter.

Ash.—This includes mineral matter, such as potash, lime, phosphoric acid, etc., which form an integral part of the plant from which the feeding-stuff is derived, as well as impurities such as sand, dirt, etc. Oil-cakes as a rule contain an ample supply of the mineral constituents which are necessary to the animal, and the ash may therefore be left out of consideration in comparing their value.

The following table shows the composition of a sample of English-made coconut cake compared with that of feeding-cakes in common use in this country.

Crude Nutrients.

	Moisture.	Crude. proteins.	Fat.	Carbo- hydrates (by dif- ference.)	Crude fibre.	Ash.	Nutrient ratio.	Food units.
	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>	<i>Per cent.</i>		
Coconut cake, Eng- lish (ex- pressed)1.	8.5	24.5	8.3	39.8	12.8	6.1	1 : 2.42	122
Linseed cake, Eng- lish made, average (ex- pressed)2.	11.16	29.50	9.50	35.54	9.10	5.20	1 : 1.94	133
Linseed meal (ex- tracted)2.	13.15	34.75	3.03	34.67	8.75	5.65	1 : 1.20	129
Decortica- ted cotton- seed meal, Atlantic Ports (ex- pressed)2	7.40	42.37	10.16	25.86	7.06	7.15	1 : 1.16	157
Undecorti- cated cot- ton-seed cake, Eng- lish made (expres- sed)2	13.75	24.62	6.56	29.28	21.19	4.60	1 : 1.67	107

1 Analysis made by the Agricultural Analyst for the County of Wills (1912).

2 Quoted from Smetham ("Journ. Roy. Lancs. Agric. Soc.," 1914).

In discussing the feeding value of different kinds of cake it is desirable to decide on a unit of comparison which will take into account the food values of all the different constituents of a cake, and thus enable the total feeding value of one cake to be compared with that of another by a simple numerical ratio. Such a unit may be arrived at in the following way.

As the various food constituents have different functions to perform, it follows that they will not all be of equal value to the animal. In calculating the food value of a cake the crude proteins and fat may be regarded as two and half times as valuable as the carbohydrates. Consequently the food value (expressed in food units) may be calculated by adding two and a half times the sum of the percentages of crude proteins and fat to the percentage of carbohydrates. The figures thus obtained are shown in column 9 of the table above.

They are quite useful in comparing different samples of the same kind of cake.

In comparing different kinds of cake the crude value so arrived at needs to be qualified by taking into account the different digestibilities of the similar constituents of different cakes: thus the proteins of linseed cake are different from the proteins of coconut cake and have different digestibilities and therefore different food values to the animal fed with them. Further, in the case of those cakes which contain a comparatively large amount of indigestible fibre, the whole of the digestible constituents are not available for meat or milk production. In calculating the food value on this basis the proteins are taken as equal in value to the carbohydrates, but the fat as two and a half times as valuable, whilst the amount of crude fibre is also taken into consideration. The food value (expressed in food units) in this case is found by adding two and a half times the percentage of digestible fat to the percentages of digestible crude proteins, carbohydrates, and crude fibre, the indigestibility of the fibre being allowed for by deducting from the figure thus obtained one unit for every 3 per cent. of crude fibre present. The figures thus obtained are shown in the following table, which also shows the percentage of digestible nutrients in samples of cakes and meals.

*Digestible Nutrients.*¹

	Crude proteins. per cent.	Fat. Per cent.	Carbo- hydrates. Per cent.	Crude fibre. Per cent.	Food units.
Coconut cake, English (ex- pressed)	19.1	8.1	33.0	8.1	76
Linseed cake, English made, average (expressed)	25.37	8.74	27.72	2.91	75
Linseed meal (extracted)	29.19	2.88	28.45	4.7	67
Decorticated cotton-seed meal, Atlantic Ports (ex- pressed)	36.44	9.55	17.33	1.98	77
Undecorticated cotton-seed cake, English made (ex- pressed)	18.96	6.1	15.23	3.8	46

¹ Calculated from the analyses shown in the preceding table, using the digestibility coefficients of Kellner ("The Scientific Feeding of Animals," 1909, pp. 381, 388).

It will be seen from the above table that when the digestibility of the constituents is taken into consideration, coconut cake compares favourably with cakes in common use for feeding purposes. Although containing less proteins, the high proportion of digestible carbohydrates and fibre bring up the total food units almost to the level of decorticated cotton-seed cake, and slightly above that of linseed cake.

In comparing the cost of the different cakes, allowance must be made for the manurial value of the residues arising from their consumption. If this be deducted from the current value, and the net cost so obtained be divided by the number of food units calculated on a digestibility basis as shown in the table above the net cost per food unit will be found. This figure will represent the price which the farmer pays for that part of the cake which is actually used for meat and milk production. The current value, value of the manurial residues, and the cost per food unit of coconut cake compared with linseed and cotton-seed cakes, are shown in the following table:

	Current value per ton.	Estimated value of manurial residues arising from the consumption of 1 ton of feeding-stuff.	Cost per food unit, per ton, calculated on the net value, i.e. the current value less the estimated value of the manurial residues.
Coconut cake ex(-pressed).	£6 10s. to £7 according to quantity and position (London, November 1914).	£1 14s. 7d.	1s. 3d. to 1s. 4½d.
Linseed cake (expressed).	English, guaranteed 95 per cent. linseed, £8 12s. 6d. to £8 17s. 6d. (Hull, November 1914).	£2 4s. 4d.	1s. 8½d. to 1s. 9d.
Cotton-seed cake	American, £8 10s. to £8 12s. 6d. (Liverpool, November 1914).	£3 4s. 9d.	1s. 4½d. to 1s. 4¾d.
1. Decorticated	English, £5 15s. to £6 5s. (Liverpool, November 1914).	£1 17s. 1d.	1s. 8d. to 1s. 10d.
2. Undecorticated (both expressed.			

It will be seen that when all the factors are taken into account coconut cake is cheaper than linseed or cotton-seed cakes at the rates prevailing recently, and that the difference in price per food unit per ton represents a considerable advantage to the farmer who uses coconut cake in preference to linseed and undecorticated cotton-seed cakes.

Comparison of English and German Coconut Cakes.

Since the crushing of copra was commenced in this country, cakes of higher feeding value have become available. The difference in the composition of cakes produced in England and Germany is fairly considerable, the chief feature being the comparatively low proportion of fibre in English cakes, as is shown in the following table:

	ENGLISH.		GERMAN.
	1.	2.	(According to Kellner, <i>loc. cit.</i>).
	Per cent.	Per cent.	Per cent.
Moisture ..	8.5	9.85	10.5
Crude proteins ..	24.5	23.00	21.4
Fat ..	8.3	8.00	8.5
Carbohydrates ..	39.8	44.23	38.7
Fibre ..	12.8	9.22	14.7
Ash ..	6.1	5.70	6.2

The analyses of the English cakes have been supplied by the makers of the cakes; No. 1 was made by the Agricultural Analyst of the County of Wilts in 1912; No. 2 is a factory analysis.

The Trade in Coconut Cake.

Particulars as to the extent of the trade in coconut cake and the amount at present employed for feeding purposes are difficult to obtain. Mr. E. W. Thompson, who has recently investigated the trade in cotton-seed products and their competitors in Northern Europe, on behalf of the United States Government, states that 71,000 metric tons of coconut cake were produced in Germany in 1912, of which 30,000 tons were consumed there (*Special Agents Series: No. 84, Bureau of Foreign and Domestic Commerce, U.S. Dept. of Commerce*). The exports of coconut cake from Ceylon in 1913 amounted to 236,692 cwts., valued at £72,910; the chief customers were Germany (157,895 cwts., of value £45,629) and Belgium (73,606 cwts., of value £25,677). In 1912-13, 128,074 cwts. of cake, valued

at £41,463, were exported from India, and practically the whole of this was sent to Germany. According to Thompson, 12,000 tons of coconut cake were produced in the United Kingdom in 1912, and 8,000 tons were exported; 9,400 tons were produced in, and 5,000 tons were exported from, the Netherlands in 1912; 10,500 tons were produced in Denmark in 1912, and practically the whole of this was exported. It has been estimated that about 64,000 tons of cake were produced in Marseilles in 1912; it is not exported to any extent from France.—*Bulletin of the Imperial Institute, London.*

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PRIZE HOLDINGS COMPETITIONS.

ST. MARY.

REPORT AND AWARDS OF JUDGE.

I beg to submit my Report on the Prize Holdings Competition for the Parish of St. Mary during the year 1914-15.

The actual judging commenced on March 16th and was completed on May 18th. The judging was not quite continuous it being necessary to make one or two breaks in order to attend to other pressing duties some of which had been previously arranged. To some extent these breaks are useful as it is a very strenuous undertaking to continue judging Holdings several weeks together, but on the other hand it makes the fixing of the values of the various holdings somewhat more difficult as there is the danger of losing track of some of the points of interest especially where the Competition is keen.

On the whole we had the advantage of good weather except toward the end when there were some good showers, and in a portion of the parish some very heavy rain which made the task of getting about the holdings a difficult one.

This is the 4th Prize Holdings Competition held in this parish, I have been associated with Mr. Cradwick in the judging for each of these Competitions, so am therefore in a good position to estimate the value of the work accomplished and to appreciate the progress made during the last 14 or 15 years.

I have acted as Judge of the Prize Holdings Competition for at least 15 years and during that time have acted as Judge in connection with three Competitions in each of the various parishes and in several parishes for four Competitions.

The experience gained in visiting so many Holdings scattered all over the Island over such a long term of years is of very great help in fixing a fair value on the work done on each holding in connection with these Competitions. It is true that each tub stands on its own bottom, so each parish stands on its own merit and each holding gets full credit for its own work done and progress made.

And while it is true that the Competition is between the holdings within each parish and not between parishes, yet a knowledge of the general conditions existing in all the parishes enables one to appreciate at its true value the work done in each parish.

I am led to put the case in this way in order that what may be stated in this Report may carry the force and emphasis the subject deserves. I should like it to be understood that the feelings of appreciation one may be forced to express in connection with the recent Competition in St. Mary are tempered and balanced by a knowledge of the exceedingly useful progress being made in some of the other parishes.

The recent Competition was beset with special and unusual difficulties, first there was the effect of the rather unusual occurrence in St. Mary of the severe and prolonged drought of the last three years, the evil consequences of which are still to be seen on many of the holdings; then there was the lateness of the banana crop, but what has been much more serious is the slow and unsteady demand for the fruit and coconuts during the early part of the year, and last but not least, the disorganization of so much business on account of the War.

Yet in spite of these drawbacks, the Competition was a highly successful one, and great credit is due to the Instructor, Mr. Cradwick, and his Assistants, for the manner in which the Competition was worked up, and too much cannot be said in praise of the various Competitors who in spite of the depressing influences of drought, War, and shortness of ready money, stuck to the work and succeeded in carrying through one of the keenest Competitions it has ever been my privilege to judge. There were at the start some 120 entries, but on account of the above mentioned difficulties several were not able to complete their preparations and a few others

were advised to further develop their holdings before entering the Competition, and there were one or two disqualified in not being in accordance with the Rules, but there were 92 Holdings visited and judged.

This is most satisfactory progress. In the first Competition there were less than 30 Competitors. I have not the figures for the second Competition, but in the third Competition, 1910-11, there were 47 as against the present 92. Mere numbers at times are deceptive but in this instance the increase in numbers is fully supported by the progress of the work and not only the amount of work but more especially the character of the work now seen on the Holdings.

1.—PERMANENT AND STAPLE CROPS.

The name of these crops is an indication of their great value to the holding. Most of them take a number of years of labour and care to establish, but in return for these years of hard work and thoughtful care they become a source of permanent income, even when on account of failing health or advancing age the labour ceases and the thought languisheth, the Coconuts, the Cocoa, and the Coffee which were established during the years of strength will yield their increase and continue to comfort and sustain their owners in the declining years, successfully blocking the way to a state of dependence on the parish rates or still worse a condition of misery and want. Hence the importance of giving to this section of the holding the attention it deserves. But there is the constant fight against insect pests and plant diseases. It has been one of the chief aims of the Jamaica Agricultural Society to explain and emphasise the importance of instituting and maintaining a systematic crusade against these evils.

The Prize Holdings Competition has been one of its chief agents in this work and without doubt the one attended with more definite practical and permanent results than any other single agency of the Agricultural Society. This fact has been made clear to all who have followed with intelligent interest the progress of the Competition in the various Parishes during the past few years, but if it were possible for a doubt to linger the last shadow of it has been brushed away in connection with the recent Competition in St. Mary.

It can be said without fear of contradiction that in connection with the first Competition there was no serious attempt on the part of the Competitors to practice the most elementary ideas of pruning.

In connection with the second Competition, the ordinary pruning Shears was coming into use for neatly clipping off dead and superfluous Branches and this was about the limit. During the next three or four years seeds of entirely different ideas of pruning especially in regard to Cocoa were sown and by the time of the third Competition four years ago had begun to bear fruit. Along with the Shears a sharp knife was used to smooth the cuts and some neat work of this kind was being done. Tar was also being introduced to treat the cuts with, but its use was looked upon more as a work of supererogation than as a work of necessity in these days.

But it is during the last four years that the tremendous jump forward has been made. The pruning and general treatment of Cocoa trees has now reached a scientific standard and is such as deals with the very existence of the tree. The work now being done is no longer a mere pruning to rid the tree of superfluous branches to give them shape and symmetry and to increase fruit bearing, but is a highly technical surgical operation which aims at ridding the tree from every vestige of disease. The length to which these operations are carried and the extent to which the trees are cut away to get to the root of the disease and yet live and bring to maturity its crop of pods must be seen to be really appreciated. To attempt to describe specimens a large number of which I saw during the recent Competition, would be to risk establishing a reputation I am not anxious to possess. In the treatment of Cocoa trees the pruning Shears are now discarded and an elaborate and efficient set of tools has taken their place and no small settler in possession of a Cocoa cultivation considers himself abreast of the times and upsides with his neighbour who does not possess the necessary tools, and what is much more to the point, the ability to use them. It would be dangerous and exceedingly harmful to say that all the attempts of the Competitors to treat their trees were perfect, or in some cases even correct, but it is with the keenest appreciation I have to admit, that a great deal of the work was excellently done and quite a fair proportion of it was beyond criticism.

In St. Mary at present there are a number of aspirants for Certificates as Cocoa pruners. The question of the employment of itinerant pruners is an important one and needs the serious consideration of the Instructor. When judging the holdings in St. Catherine and Portland and again in the present Competition in St.

Mary, I had occasion to call attention to defects in pruning and received the reply: "That the pruner who had been employed had said it was correct". It is highly important that each settler should know how to do it himself even if he has to employ help otherwise he is at the mercy of these itinerant pruners who to say the least are not always as painstaking as they ought to be. The Small Settler need no longer remain inactive and see his Coconut, Cocoa, and other trees and plants, the labour of years to establish, dwindle away one by one the victims of insect pests and plant diseases. With the co-operation of his Instructor, his intelligence and his labour, he can successfully combat them; many have done so and others are following.

Looking back over the same period of years the banana cultivations have received their fair share of attention and the advance made is equally satisfactory.

A proper value is now put on manure, better methods of tillage are adopted, and definite and successful attempts made to regulate the crop so as to meet the demand at the season of the year when the best prices prevail. One was impressed with the elaborate system of trenching which is the rule now instead of the exception.

Trenching is the wrong word in this connection but by common consent is allowed to pass. In the early days of the Competition trenching consisted of cutting drains down the hill to assist the floods of water to carry away large quantities of the best land to lower levels and often into someone else's holding, leaving the crops on their own hill sides to perish. This has now been entirely changed and the system of trenching, in practice, on many of the holdings inspected, reflects the greatest credit on the Competitors.

II.—CATCH CROPS.

The St. Mary holdings have never been strong on the question of Catch Crops. Remembering that they can grow to great advantage such crops as coconuts and especially cocoa and bananas, one is not surprised that they devote so much attention to these crops. Yet at the same time I am strongly of the opinion that every Competitor should utilise a fair proportion of his land for the production of native food-stuff. It will be argued that if he grows products for export he can buy food. But the exportable products take long, in most cases years, to mature, are at times injured by drought and completely destroyed by hurricane, whereas food-stuffs mature quicker and more quickly recover from a drought and can be re-established a few months after a hurricane. Local circumstances and conditions make exceptions to all rules but as a general rule an acre of land carefully cultivated in food-stuffs will produce more in value in the shape of food than can usually be purchased with the money obtained by the sale of exportable products from the same area. But apart from that fact there are always certain parts of the holding not adapted to the production of staple or permanent crops but which with the aid of manure and good tillage would produce crops of foodstuffs. The want of land is not the difficulty, but the want of thoughtfulness and the failure to appreciate the true value of each product in the economy of the homestead.

It is a want of ambition, a want of that proper desire to make the most and best of everything. In other words the same spirit which exists in connection with so many other things all over the Island, "I can't bother."

It is so easy to pick the few cocoa pods, if they are not even ripe they can be readily exchanged for the meal, the flour or the rice, and thus our products continue to suffer in the Markets of the world, and what might be a useful asset on the holding if taken care of, dwindles away in poultry sums day by day. Most of the holdings in the Competition were disappointing on the question of catch crops; however, I wish to mention the following Competitors as exceptions to the above:—Francis White, Rev. C. C. Hastings, George Cummings, D. P. Watson, John Parodie, Simon Strachan, H. C. Walker.

In the second Class:—E. C. Campbell, Mrs. Goldson, Miss Dacosta, Michael Sewell, Roderick Giscombe, William Hirst.

In the Third Class:—Jeremiah Gordon, David Campbell, Henry Robbins, James Bailey, C. N. Amiel, Rachael Somers and Samuel Hird.

III.—LIVE STOCK.

There is not much of special interest with regard to the live stock in connection with the Competition to remark upon.

The general conditions of cultivations, etc., on the Small Holdings in St. Mary are such that do not offer much inducement to the keeping of stock, still I think that more ought to be done in this way.

There are always odd bits of feeding that should be utilised, and if fed to some kind of stock returns to the holding in the shape of manure, and the stock can eventually be turned into cash which is always useful. Stock and especially small stock, is a matter which deserves more serious consideration. However, it is only fair to say that the stock shown were in good condition and appear to be well cared. Miss

Dacosta had some nice goats, Mrs. Vernon had two excellent sows of the ideal type for small settlers. Mr. D. P. Watson had nice well kept mules also Mr. Edward Moore.

Special mention must be made of Mr. Edward Gray; he certainly had the finest collection of pigs I have ever seen on a Small holding—the best as to type as well as the way in which he kept them. He had 25, and there was not a weedy one amongst them. His mules also were excellent. I beg to suggest that the Competitors should bring up for discussion at their Branch Meetings the question of keeping Small stock on the holdings, especially goats pigs and rabbits.

IV.—FENCES, GATES AND GENERAL CONDITIONS.

This part of the holdings used to be a weak point in connection with the St. Mary Competitions. But as each Competition came round, the importance of the matter was impressed upon them and soon signs of improvements were seen. But it was only during the last four years that the Competitors seemed to have caught the real spirit of the thing. The progress during that time has been most satisfactory and the advance made must be seen to be appreciated. Under this section there are three items: fences, gates, and general conditions, and each of the three have received their fair share of attention. A good deal of fencing has been done, but what was more impressive was the erection of so many neat and substantial gates, a number of which were neatly tarred, adding greatly to their appearance as well as to their durability. But the item in this section of the Competition which stood out above all else was the general condition of the holdings. All except one or two who had not taken the Competition seriously, had spared no effort to improve the general condition of their holding; new gates, new roads, new fences, were the order of the day, and the neat and tidy yards and outbuildings added that completeness to the whole which made the visit to the various holdings a pleasant experience. But without in the least detracting from the credit due to the others, special mention must be made of the following: Mr. George King of Belfield, whose holding was the very acme of neatness and completeness. It is seldom I have had the pleasure of visiting a small holding where every detail in the interest of comfort and health were so perfect.

Other Competitors who also had done most excellent work were Miss Dacosta, Messrs. D. P. Watson, Edward Moore, John M. Harper, George Cummings and Samuel Sinclair.

V.—MODERN IMPROVEMENTS.

So much was written on this subject in connection with permanent crops, that it is not necessary to refer to it again more than to call attention to the fact that although the Competition has been made at least 20% more difficult by adding this section to the schedule of marks, yet the average total number of marks scored is equal to the previous Competition showing that there has been a great deal of actual progressive work done; in other words, the holdings have advanced by at least 20%.

VI.—HOUSE.

This part of the Competition shows most satisfactory progress during the last four years. House building in St. Mary where suitable materials for the purpose are so scarce is an expensive undertaking, and the fact that so many neat and substantial houses have been erected reflects the greatest credit on the competitors, and too much cannot be said in praise of the exceedingly clean and tidy manner in which they are kept, the majority of them are models of neatness and comfort.

VII.—SANITARY CONDITIONS.

This is also one of the items where very marked improvement has been made. Putting aside the immense amount of work which has been accomplished by the Prize Holdings Competition tending to increase the productive value of the holdings the good which has been done in connection with the general conditions, the houses and sanitation more than repay for the labour and money spent.

It is well worthy of remark that in this Competition in two of the weakest points formerly—house and sanitary conditions—28 competitors have scored full marks although the marking under all the headings is much more rigidly done than it used to be.

I beg to attach a schedule of the marks scored with a list of the Prizes recommended. The Competition has been exceedingly keen and it has been with the greatest difficulty that the awards have been made.

FIRST CLASS.

1st Prize	John Parodie	84 marks.
2nd Prize	J. A. Banks	78 marks.
3rd Prize	Francis White	76 marks.
4th Prize	Peter Schleifer	72 marks.
5th Prize	H. C. Walker	71 marks.

We also beg to recommend that D. P. Watson, George Cummings and Samuel Sinclair, be awarded extra prizes of 6/- each for the specially good general condition of their holdings.

SECOND CLASS.

1st Prize	Miss Dacosta	84 marks.
2nd Prize	Edward Moore	79 marks.
3rd Prize	James McGibbon	73 marks.

Michael Sewell and Mrs. Reynolds tie with 70 marks for the 4th prize; we beg to recommend that 10/- be added to the ordinary prize, and the amount equally divided between them.

Roderick Giscombe and John Ellis tie with 67 marks for the 5th prize. We beg to recommend that 5/- be added to the ordinary prize, and the amount be equally divided between them.

We also beg to recommend extra prizes of 4/- each to Mrs. Goldson and Mrs. White for their neatly kept houses.

THIRD CLASS.

In this Class there were 58 Competitors for 5 Prizes, and the fact that 31 of them scored 60% marks and only 6 out of the 59 scored less than 50%, will give some idea of the extremity difficult task it has been to award the Prizes.

1st Prize	R. D. Sutherland	76 marks.
2nd Prize	R. M. Goldson	75 marks.

Mrs. H. E. Vernon and Miss J. Robertson tie with 72 marks for 3rd prize. We beg to recommend that 6/- be added to the ordinary prize, and the amount equally divided.

H. Helps and George James tie with 70 marks for the 4th prize. We beg to recommend that 4/- be added to the ordinary prize, and the amount equally divided.

Philip McLaughlin and Joseph Thompson tie with 67 marks for the 5th prize. We beg to recommend that 1/- be added to the ordinary prize, and the amount equally divided.

In this Class there are 16 others whose efforts to improve their holdings we feel compelled to recognize, and we beg to recommend that they be awarded extra prizes of 4/- each with Certificates. This still leaves 29 Competitors in this Class who have done excellent work, scoring 50% of the maximum marks.

We trust the Committee will accede to the request for the extra prizes with the Certificates as this recognition by the Society of the efforts put forth will be much appreciated by the Competitors.

For Good Permanent Crops.—

Jeremiah Gordon, Henry Robbins.

For Good General Conditions.—

Mrs. Rachel Preston, David Campbell, Robert Jones, George King.

Good General Improvement.—

Samuel Bell, C. N. Amiel, Rachael Somers, A. A. Constable, Alfred Anderson
Alexander Mouncrieffe, J. A. Bernard.

Trenching and Good Cultivation.—

Samuel Bird.

Stock.—

Edward Gray.

For Well Kept House.—

Mrs. E. Tucker.

I fear that this report will be considered too long but in simple justice to the parties who put so much interest and energy into the Competition, I have felt compelled to write at length. And I take this opportunity of expressing my cordial thanks to the many whose kind help in carrying through this Competition was so necessary and so acceptable. To the Competitors who have not won a Prize, but who did praiseworthy work we wish to express our thanks and to assure them that their efforts have been appreciated by the Jamaica Agricultural Society.

E. ARNETT, Judge.

W. CRADWICK, Instructor.

COCOA.

I am just in receipt of the annual report of the Trinidad Dept. of Agriculture; in it I note the following, p. 81 Report on River Cocoa Estate. Crop produced. "The average yield obtained was 9.5 bags per 1,000 trees; this should be considered satisfactory when it is borne in mind that we are now in the third year of excessive drought."

"Due consideration must also be given to the fact that the estate is still in a stage of formation and is by no means fully established."

Par. 9, Cocoa Prize Competition: "This continues to progress and very satisfactory results have been recorded." "A letter from one of the Competitors is published showing that the yield of his 2,800 trees has increased from an average of 5.8 bags to 11.8 bags per 1,000."

"A special Prize Competition has been started this year among all winners in the Competitions of former years."

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I am frequently asked, what is the yield per acre of Cocoa plantations in Trinidad? If we take the three yields given here, the one on River Estate which being the plantation of the Department of Agriculture, similar to the one at Hope, and we may assume a model of what a cocoa plantation should be although "not fully developed," and the yield of 5.5 bags per 1,000 trees of the competition mentioned on pp. 9, and also the improved yield due to the improvement brought about by the Cocoa Prize Competition of 11.8 bags per 1,000 trees, the "bag" in Trinidad being of a standard weight of lbs. 165, this would give about $1\frac{1}{2}$ lbs. of cocoa per tree, or an average of about 20 pods per tree, if the Trinidad acre were calculated at about the Jamaica average of 225 trees to the acre (at 14x14 ft.) this would give about 2 bags per acre. In making some calculations some years ago with Mr. J. O. Mason, we found that over an area of between 60 and 70 acres of land at Layton Valley, he got an average of between 600 and 700 pounds of dry cocoa to the acre per annum. I also made some calculations with Mr. S. F. Noyes of Stokesfield, Port Morant some years ago, but unfortunately I cannot lay my hands on them and I dare not trust to memory, but I am pretty sure his yield was a little better. I would like to hear from other planters what their average is. Of one thing I am perfectly certain and that is that on our good cocoa lands in St. Mary, Portland, St. Thomas and St. Catherine and to a lesser extent in some of the other parishes, notably such lands as New Ground in St. Ann, parts of Hanover St. James and practically every parish, with proper attention to prevention of disease and fair ground cultivation, the yield, as set forth in the report quoted from, could easily be beaten by 500%.

The idea of "a Competition among Prize Winners" is worthy of bearing in mind when the Government is once more in Funds, for Prize winners among the Competitors in the Prize Holdings Competition, and in Cocoa Competitions too.

Note.—River estate Trinidad had a rainfall 1914-15 of 62.09.

W. CRADWICK.

CUT WORMS.

These have been very destructive this year, to corn especially, but now they are also attacking 'Irish', potatoes. We have often referred to the treatment. We sent specimens to the Entomologist lately. He writes us:

"The term cut worm is so variously used in different parts that as yet there is much confusion. Properly applied it refers to the caterpillar of certain Noctuid moths which secrete themselves either beneath the surface of the ground or amongst the roots and procumbent stems of surrounding vegetation during the day and come forth at night to carry out their work of destruction on man's crops. The wire worm—the grub of the Elaterid or Click Beetles—and the white grub—the larval stage of the Lamellicorn Beetles—are sometimes referred to under the name cut worm and there certainly is in cases extreme similarity in the form of injury. It is customary in areas where crops are subject to early attack by cut worms to use a poison bait of some sort a few days before planting a crop or before germination of a seed crop. This may however be advantageously used after planting or germination.

Formula for cut worm mash bait.—

1 lb. Paris Green

25 lbs. Bran

2 qts. Syrup or molasses.

Method of preparation.—(a) Mix the Paris Green thoroughly up with the Bran. (b) Stir the molasses or syrup into a gallon of water. (c) Moisten the Paris Green and bran mixture with the molasses and water, stirring thoroughly until it makes a stiff mash. Do not add so much water and molasses that the mash will be thin and cake when exposed.

Application.—Distribute small quantities of this about the area to be planted a few days before operations are to be commenced. If seeds have germinated or plants are out sprinkle a little near the plants or seedlings. In both cases distribute towards evening so that the bait may be in fresh condition for the outcoming caterpillars at dusk.

Small bundles of succulent vegetation—alfalfa hay answers the purpose well in U.S.A.—dipped in a mixture of Paris Green ($\frac{1}{2}$ lb. to 50 gallons water) and thrown here and there in fields of young plants, has in cases proved successful.

For smaller or larger amounts of material use proportionate amounts of the ingredients.

(Sgd.) ARCHIBALD H. RITCHIE,
Entomologist.

Note.—Bran is not to be got in the country, cornmeal does equally well. But unfortunately poisoned baits placed openly in fields are taken by birds, and we cannot afford to poison these. Placing the baits in bamboo pots, or even old condensed milk and salmon tins, placed on their sides, work fairly well. But in a 10 acre field of corn it is a problem to kill out the cut worms when they are in great numbers. It is to be remembered that Paris Green contains Arsenic and is a poison.—ED.

COWPEAS.

We have often described the nature of the different legumes used for manurial crops or green dressings or as a green mulch, but many readers glance at these short articles, not particularly interested at the time in any of them or only one of them, perhaps, and then circumstances occur later which demand their attention to others. We gave a pretty full description of the legumes in use here in the JOURNAL for May, 1914. The most useful all-round legume for growing through bananas or canes, is the Cowpea. It can be planted any time there are good showers, but best results are got by planting when corn would be planted in a district. There are many varieties of Cowpea. The Black Eye Pea is a variety of Cowpea, but is never considered here as such and the name Cowpea is applied to a coarser pea which is a stronger grower, of a brown or clay colour. The brown variety called "The Wonderful" was one introduced commonly before the Clay variety, but the latter is now the greatest favourite. The varieties are often found mixed yet, but generally the Clay variety has nearly superceded the Wonderful. There have been other kinds grown, but these have proved the most generally useful.

They take four to five months to blossom, (according to season and locality) and six months is allowed for them to bear their ripe seed. If planted closely they cover the ground fairly thickly, and help to keep down weeds. If the full manurial benefit is wanted they should be cut down (or disked down with a disk plough but not buried deep) and let lie as a mulch to be forked or ploughed in when they are dry. Turning in a mass of green stuff into the soil in a hot country especially in a moist locality tends to make the soil sour. However, many planters let the peas, or a proportion of them bear. The wisdom of doing this depends upon the market for foodstuffs. It may be figured that the sale of a large quantity of peas is worth more than the loss in manurial value. If planters would only try a fertilizer containing phosphoric acid and potash on the peas, and note results in vegetation (and peas if allowed to bear) and on the crop of bananas following, they would probably always manure their bananas through Cowpeas.

Not all soils grow Cowpeas well and not all planters care to be troubled with a crop to turn in, in 5 or 6 months. What some want to do is to save labour weeding, or to get something to crush out some persistent quick growing weed which causes great expense. To do this a creeping vine that will grow close, thick and dense on the soil and last 9 months or more, is wanted. This is got in the Jerusalem Pea (fully described in JOURNAL for May, 1914.) It is a small red pea, which starts to grow very slowly and weakly (like a young Congo pea) so needs a good first weeding. Then when it gets well started it crawls freely and covers the ground very thickly so that no weeds can show face under it. It may go on to the bananas if planted too near them. One row between bananas 12 feet apart is sufficient. This pea does not blossom until October, and the pods and peas are so small they are hard to save. Usually some ripen earlier than others and fall and reproduce themselves. If cut down end of October or beginning of November a thick mulch is left.

On clayey and stiff soils generally, Overlook Beans are now freely used. Half of St. Mary would appear to be covered with them—they are strong growers from the first with deep and powerful

roots, last a long time, but they are not crushers to the extent of the Jerusalem peas; their growth is more open. They are such sure growers that beans could be sold very cheaply if any use could be made of them. Careful experiment would require to be made with the beans crushed in a mill to find if they would make good feeding for mules if used with a proportion of corn.

Bengal Beans perform a different service from the others. if planted, even one row up the rows of bananas, they would in 3 months be up over the plants and crush them out. Their particular service is to be planted through an old piece of bananas about to be flung up instead of leaving weeds to grow up through it. The Bengal Beans will crush out all weeds, cover the bananas with vines, then beasts turned in will feed the whole down, and the land will be left covered with a mass of manure, while the roots of the beans below will rot deep down and add a rich store of nitrogen also. We have found vines a year old with a main root as thick as a man's wrist. On land to be put under cane or banana, begin 9 months to a year ahead and plant Bengal Beans over it to get rid of weeds and add nitrogen. Feeding on a pasture may be lost during that time; but it must be figured out if the feeding per acre for stock will give more than the Bengal Beans will when ready to be put down. These beans will save some weeding after the land is taken up as weed seeds will not be there to start quickly, before the main crops gets a start; even Para Grass will in most cases be crushed out; in others the joints in the soil not killed out will at least take long to recover vitality and grow; the beasts will get 2 to 3 months rich feeding on the vines (worth 3 or 4 times more per acre than grass; the manurial value in humus and nitrogen certainly ought to be worth 40/- per acre.

We have Cowpeas, Jerusalem Peas, Overlook Beans and Bengal Beans in stock.

:O: OIL MEALS.

It is really a grievous thing that we here should export £135,486 value in fresh Coconuts often sold cheap; send away and sell at a cheap price all our Cotton Seed; import £22,318 value of Cotton Seed Oil for cooking, and when we want a calf meal or cattle feed have to import Cotton Seed meal and Coconut meal!

Oil crushing machinery would pay here now.

In 1903 and years previous there was such machinery here, Coco-nuts were used and the coconut oil was used for soapmaking. The hurricane of that year caused coconuts to be scarce; castor oil seeds were wanted as a substitute, but none could be got in quantity, even at 4/- a bushel, and we had no cotton grown then.

Now we have a larger production of coconuts than ever, Castor Oil seeds have been grown in quantity enough for a local market (though not enough for a large export trade), and plenty of people have intimated that they would grow them in small quantities. Cotton Seed too is now available.

Is it possible to renew interest in a local oil and soap trade? The resulting by-products would be sold readily now:—

1. The meal from the coconuts as a feed for dairy cows.
2. The Cotton Seed meal for the same purpose.
3. And the Castor Pomace as a rich fertiliser for garden and field.

THINGS TO BE OBSERVED—Continued.

C—ABOUT COFFEE.

1. Seedlings grown in stiff soil are deficient in root feeders and show little more than the tap root when taken up. These seedlings when transplanted often die. Conclusion: The best plants are raised in free fertile soil. Use a spade to lift seedlings.

2. The coffee has a long tap root, therefore it should be planted in a hole about 18 inches deep and about a foot across.

3. Several of the old coffee properties on the hills of St. Andrew are going for "an old Song." Would be buyers pronounce them impoverished. The heavy washing of years has carried off the finer soil. Conclusion: To save existing plantations where the land is steep, avoid weeding with the hoe, and resort to the Blind Trenches so strongly advocated by the Jamaica Agricultural Society.

4. Young trees from 18 months to 2 years of age often droop and wither. The trouble is with the roots. Search for a large white grub. Open the hole, apply a sprinkling of lime and expose for two weeks then supply.

5. Large bearing trees sometimes wither and die. In this case the roots have been found suffering from a fungus originally observed in Java.

Conclusion: The fungus spreading along the roots of one plant will infect the roots of others. Dying and dead trees should be dug out with the roots and burnt. The ground should be dug up, treated with quick lime and not planted within a month.

6. Some trees are at times badly attacked by ants. As a remedy apply ashes at the roots.

7. Wind will twist about trees leaving openings around the tap roots to retain stagnant water.

Conclusion: Top as low as 3 ft. or even 2ft. 6in. in windy situations. In more favoured situations a tree 5ft. high is more valuable.

8. Among trees belonging to experienced growers many are found suffering from split head.

Conclusion: Bad pruning. Top at a point where branches, leaves and stem unite so as to leave a knot. Nip off, leaving not only a bit of stem, but bits of the two branches also.

9. Trees along the margin of clustered groves invariably bear better than those inside. Conclusion: This is the effect of light and air. Thin, prune, and feather, and your crop will more than repay the extra expenditure.

10. The cutting away of the bark at any point on the stem is always followed by a shoot on the lower edge. Conclusion: To rear up a new plant from an old stock make an excision on the stem near the surface of the soil, and tar.

11. "Riders" or "Jack Limbs" are splendid bearers only for the first year, and to a fair extent for the second year. The tree after a few years will appear a skeleton if riders are left alone.

Conclusion: It is best to remove all riders as soon as they appear.

12. Parchment coffee to be white, must be produced by pulping the ripe berries within 24 hours after they are gathered.

13. Blue Mountain Coffee cured under the hot sun of the Liguana Plain would result in a much inferior article than the genuine Blue Mountain product.

Conclusion: Not only is the cool climate of the Mountains favourable to the growth of the plant, and the development of berries, but the mild temperature has much to do with the quality of the cured product.

In lower altitudes therefore, adopt the slow process of curing and protect the beans from the burning rays of the noon-day sun.

14. Settlers as a rule pay more debts from the coffee crop than from the cocoa, the former being generally sold in a bulk.

Conclusion: Encourage the growing of coffee wherever practicable.

Stony Hill.

A. P. HANSON.

:O:
PORK.

KEEPING SUMMER-KILLED PORK.—A Southern pig can be killed and the pork cured in hot weather. It should be hung in a cool cellar away from flies till the animal heat is out, then cut in small pieces and packed in plenty of salt. Don't be afraid to use salt, as pork will not take up any more salt than it needs. Be sure to hang the carcass in a cool place (cellar or refrigerator preferred) and keep flies away from it. After pork is packed pour on cold water and pack in barrel covered with brine.

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I have had a bit of experience in the care of cutting up and curing pigs at all seasons of the year, with no loss to speak of. This is my way of doing it. After the hog is dressed, split the backbone the whole length and let hang through the night, after brushing with solution of borax in water to prevent flies touching, and a stick to keep the split bone open; in the morning cut out leans and cut up sides to salt, and let it lie skin down in a cool room 24 hours. Then put a layer of (coarse-fine) salt on bottom of barrel, then a layer of the pork stood on edge, but do not crowd it so that the salt will work in between a little, then another layer of salt, thick enough so layers of pork will not hit together. When pork is all in in this way, put a board cover down tight to the last layer of salt and fasten so it will not float, and turn in cold water until it is two or three inches over the pork and you will have nice sweet meat. To cure the hams in hot weather, without some cool place to hang the carcass up, would be a risk unless one had a pump to force the brine in next the bone, as the bone in a ham holds the heat so long it will be apt to taint the meat, but the bacon strips cut to seven inches wide and cooled the same as salting pork will cure all right.

Cut up the pig as soon as killed and sprinkle it with salt, first cutting all the bones out; then after sunset take out and spread on the roof of the house, or on a platform high up from the ground, and leave there all night; take in just before sunrise, and pack in a box in as cool a place as can be found, and repeat two or three nights in succession, until the meat is well cooled and salted. Then hang up and smoke. This method works very well, by being careful to keep meat as cool as possible during the day.

Readers who would like to know how to cool pigs in warm weather, after killing. Cut the pork into pieces, and put water into two barrels; as fast as the water becomes warm in one barrel, put the pork into the other one, and so on until the meat is cooled. Then it is salted and put away for future use.

THE JOURNAL OF THE HOUSEHOLD HINTS.

STRING BEANS.—The "Miss Kelly" is very good when gathered young and tender. Peel a strip off each side; then cut beans in thin slices and throw into cold water. Drain and boil in *fast* boiling water with 1 teaspoon salt and enough baking soda to cover a 3d. Boil fast all the time. When the beans sink they are done; drain at once. Never boil vegetables with a lid on. Unlike meat, they cannot boil too fast.

Three principal rules for cooking all green vegetables are:—Put in boiling water and keep boiling; no lid on pot; drain as soon as cooked.

CABBAGE.—Should be cut in quarters, heart removed and cooked as above. To serve, smooth down in dish and cut in squares.

If cabbage has no heart, boil as above, then sieve and add a little butter, pepper and salt and serve as spinach.

CARROTS.—Scrape and wash carefully. If large cut in slices cross-wise; if small leave whole. Put in saucepan of boiling salted water. When tender, drain. Make a little white sauce—1 tablespoon flour, 1 tablespoon butter, $\frac{1}{2}$ pint milk—pour over carrots and serve hot.

CARROTS MASHED.—Cook as above. and rub through sieve. An equal quantity of either turnips, potatoes or yam may be added.

Speaking of potatoes. Very few people know how to cook a Sweet Potato to perfection.

Wash a nice big one, scrub it, don't peel it—or scratch the skin. Put in a pan of *boiling* water and boil until half cooked (when tried with a skewer they are a little hard in the centre). Drain, and put in a hot oven for a quarter hour. Skin and serve; or cut in thick slices and fry in boiling fat. Sprinkle with salt, pepper and sugar; or mash and add 1 spoon butter, a little salt and pepper, form in balls, dip in beaten egg and bread crumbs, and fry in boiling fat.

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STOCK NOTES.

In Jamaica we have not been in a position, either through not having a large enough population, or not having a leisured class, who would take up the breeding of animals as a hobby, or not having an industrial class who also would breed birds and small animals as hobbies—to afford fancy live stock, except Race Horses.

We must as a rule look to having all our live stock of strict utility for our purpose. Of course what may be the best type of animal for dry Vere may not be the best for Upper Clarendon in the same parish; what may be found the most useful for the Pedro Plains may not be quite suitable for Northern St. Elizabeth in the same parish. But there may be developed a versatile type of horse, cow, goat, pig and fowl which will do fairly well under varying conditions, as a general utility animal; while of course there may be room for special types, breeds or combinations of breeds—for special purposes, or where special conditions suit special types, such as pure dairy types of cows for dairies in Kingston.

Breeders should set themselves to find this versatile, utility type, irrespective of breed, pedigree, colour or shape, and then breed to fix and retain the type, for if it is useful and thrifty and economical it will be profitable.

At the present time we are in a transition state with our animals. We have with our cattle, for instance, been keeping certain pure breeds, mixing them up pretty much at random, not aiming at any particular type; not indeed having any decided aim in view. Yet what we want, generally speaking, in cattle, is a docile animal, easy

to feed,—that is, a thrifty grower,—in breeders' language a good doer,—one that does well on its food, with tough hide (not hairy, to harbour ticks and be hard to keep clear of these pests), an animal that will grow quickly, milk well as a cow, that is, 5 to 6 quarts of a morning at least; as a steer that will make a fairly good draught beast, and as a fatterner make good beef.

Can all this be found in the one animal? We think it can. We have even found all in particular beasts; and if such specimens could be collected and bred from, a few years might see us in possession of a good island type of useful all round beast.

We are afraid a good deal of money has been lost, or rather not made, because we have persisted in keeping stock, perhaps for its name and reputation under very different circumstances. A few penkeepers perhaps have been working along such lines as we mention to a small extent.

Now, however, that there is so much interest in Agriculture—thinking interest—we hope more will breed cattle with a definite purpose and aim. For instance, nearly every breeder of cattle can remember a cow of his herd which under any conditions did well, never got off colour, bred regularly, milked well, raised fine calves. Suppose a collection could be made of such individual types, and these bred to the thriftiest bull raised out of the lot. Then a selection made from the calves again, and yet again; and if there happened to appear an extraordinarily fine type as might readily occur, breed in to fix a type.

Much as we are against inbreeding in every day stock-raising, yet no breed has ever been made without inbreeding. But mating animals scientifically with a definite aim in mind, a fixed purpose, a steady resolve, unlimited patience, and the application of close observation and skill in animal husbandry, are all entirely different from the ordinary, casual, inbreeding done through carelessness, indifference, ignorance or meanness—the grudging the expense of getting a fresh sire for the herd or flock.

At the Stock Farm at Hope, the aim is to produce a hardy type of dairy cow by a judicious blend of Indian and British breeds. Such experimenting has for long been done at the Stock Farm in Trinidad, but naturally it is the work of years. Now the Stock Farm here is also taking up the fixing of a hardy Island type of beef cattle by securing promising direct crosses of British and Indian breeds from breeders and continuing breeding on the same lines. This will be interesting and is one way of working.

A collection of useful types, especially with traces of what is usually called the old Brahmin breed, could be made throughout the Island even though the exact breeding could not always be traced, and a standard type fixed from these in a few years. Such types are often large, thrifty cows with clean skins and big udders; the steers being big, tough and thrifty but usually rather slow as draught. Still an animal that would combine size and thriftiness, milking qualities and hardiness and have a clean tough hide, would be most useful and profitable.

PERMANGANATE OF POTASH.—Correspondents write that they have tried putting this stuff in the drinking water for fowls, and it has not cured roup! Others ask if water should have this disinfectant added all the time. We never said it would cure anything. Roup is hard to cure. We do not believe in using any medicines or chemicals *all the time*. What we recommend is that whenever the slightest sign of roup is observed among fowls—or most other troubles—it will tend to prevent infection through the drinking water if the smallest pinch of Permanganate of Potash (to be purchased from the chemist in the house) is added to the water, just enough to make it a deep rosy pink but not dark purple. As a preventative it can be used for a week occasionally, then stopped. If any severe dose of roup breaks out and is being treated, it is better to take the precaution of adding a few drops of Eucalyptus Oil to the drinking water rather than the Permanganate of Potash as it is more effective in preventing any germs of roup that may be in the fowls, from developing.

The solution of Permanganate of Potash is also used as *part* of the cure for roup in washing out the eyes, nostrils and beak.

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A good many people consult us as to troubles among their poultry. We have given most of the information required in this JOURNAL over and over. Most of these enquirers do not appear to get the JOURNAL, and they have been losing monthly, in some cases, more than the whole cost of the Journal for a year. There was, for instance, the man who could not get an egg from his fowls which cost him 6/- per week in feed, when he ought to have been getting at that time 10/- worth of eggs each week. He was feeding his fowls like fattening pigs—not encouraging exercise, stuffing them with something like three times too much food.

Then a lady told us she fed a quart of brown rice to twenty young chickens every day but they were always dying, that is she was always hatching more, losing a lot, and raising a few only. A quart of brown rice would feed over 60 young chickens a day easily. We have continually dealt with the amount of food required to feed so many head of poultry. A quart of grain would serve 20 full grown hens for one feed.

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Whenever eggs sold for setting do not hatch chickens, those who get them think they have been swindled. We have several times dealt with the different causes which may affect eggs, so that no chickens result. We condense these into a few headings: (1) Cock may be off colour and not serving or not serving properly for a day or two, or longer. (2) Hen or hens which laid the eggs may have been temporarily sick—although still laying, and this affects eggs. (3) Eggs kept too long before sitting, or kept exposed to breeze which dries out the eggs, so that the embryo cannot develop properly. (4) Eggs kept for a period and not turned each day. (5) Eggs shaken in transit—germ injured. (6) Sitting hen off eggs too long or too frequently, a restless hen. (7) Setting hen sitting too closely not cooling off eggs sufficiently. (8) Nest in a box or barrel or place where the dry hot breeze blows beneath and dries out the eggs; eggs

need moisture to hatch. (9) The seasons of the year sometimes affect eggs, great heat, for instance. (10) Thunder may affect eggs.

We take the following from a report on the great International Egg Laying Contest at Storrs Agricultural College, Connecticut, as published in the "Rural New Yorker," which illustrates some troubles with eggs for setting sent out by breeders there:—

"This seems to have been a very bad season for hatching. A well-known breeder writes me that he has had to duplicate nearly all his orders, on account of poor hatches. Very frequently this is not chargeable to infertile eggs, but is due to careless or rough handling by express companies. I recently sent 39 eggs to a customer in New Jersey who has a dark room with a hole in the side where the sun can shine through the egg. He tested the eggs as soon as received and found every one with the contents liquefied, the air space being at the top when the egg was held horizontally instead of at the big end where it should be. Although no shell had been cracked, yet they had been so jarred that the membrane between white and yolk was broken and the contents mixed up. This is done probably by throwing the packages from the express wagon to a man at the door who catches them—if he doesn't miss—and throws them down on the floor. An amateur would have set these eggs, and later report "every egg infertile." If 100 or more eggs are ordered they will go more safely in an ordinary commercial egg crate than in any other way. The crate is so thin and fragile that he does not dare to throw it; he has no time to look at labels, but he instantly knows it is an egg crate, therefore, it is carried and not thrown. If the Government would furnish hampers to carry fragile mail matter, as they do in Europe, instead of putting it in mail bags along with iron castings, or wooden boxes, then parcel post would be the best way to send eggs for hatching.

Eggs sent by parcel post or rail here receive the same treatment as any other parcels, not containing fragile contents, as there is not enough trade in eggs to warrant special treatment.

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COMMENTS.

BRANCH SOCIETIES.—The last day for sending in new lists of members and for payment of affiliation fees was 30th June. A good many Branches have not yet conformed to the Rule in these respects.

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SUBSCRIPTIONS.—Those members of the Society who have not yet sent in their subscription are asked to remember to get a Postal Order for 4/- or a cheque for that amount will do, and send to us. Foreign members, 5/-.

"SCALLIONS."—The use of manures on the red soil was well illustrated in the Lincoln district where I saw a cultivation of scallions belonging to Mrs. Robt. Holness. She has about a square chain under this crop, and she assured me that she has been planting the same piece for over 20 years. She keeps rabbits and uses all the manure from them on the piece. The scallions look well, and I need hardly add, she makes money out of same.—*Extract from the Report of Mr. Powell, Agricultural Instructor for Manchester.*

GOATS.—Under proper control the goat is a useful animal; but the goat loose to roam uncontrolled by tether or fence is the worst curse to a neighbourhood that could be imagined. Wherever goats are seen running free, whatever country or district of a country it may that country or district is poor. It may be that the goats are kept because the country will grow nothing else, but it is certain that goats at large will soon make any place poor and their owners too.

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I enclose Postal Order 5/- in renewal of subscription to your estimable JOURNAL, which I find most interesting, though my horticultural interests only find vent in a small Flower and Vegetable Garden and a score of White Leghorns. On the whole I prefer gardening in Jamaica. Garden pests are greatly in evidence—snails, wood-lice, cut worms, caterpillars and the infernal Fruit Fly, keep one very busy; plenty of rain in the winter when it is not needed and little in summer when it is. I am experimenting this summer with dry mulch, carefully cultivating after shower or watering. Very little sale for eggs now the Tourists have gone: have commenced stowing away in Water Glass according to your directions.—CORRESPONDENT, Hamilton, Bermuda.

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SOY BEANS.—When first tried here these Beans did not do very well because they were mostly grown in the lowlands, but when tried in the uplands the writer had good results and so had a grower in the Port Royal Mountains. It is never wise to go on the experience of one year, or one test, or the test of only one variety. There are numerous varieties of Soy Beans. The variety introduced this year has done very well in the uplands again. A sample grown by Mr. J. W. Pattinson of Cave Valley, sent to us, has been very prolific. It has also to be taken into account that the first year a new legume like this is grown, there may not be the necessary bacteria in the soil which a nitrogen gathering plant requires. We will watch with interest the planting of the native grown Soy Beans as undoubtedly these would be a great addition to our foodstuffs.

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PIGS.—Owing to the good seasons and the large plantings of food crops which were made from last August on, there are now large quantities of food stuffs available for feeding pigs. Bananas in some districts are in such quantities, it is stated to us, that even the hogs are tiring of eating them. Since the year 1907 there has been a shortage of pig stock owing to scarcity of feeding, and now this year there is a great demand for pigs to fatten and for breeders also. In a few districts there are plenty of pigs available, in most places they are very scarce. But owing to the absence of coastal steamers to the fact that Droghers do not sail regularly, and often take a long time between ports when there is rough weather, there is practically no means of shipping pigs around the coast. We have tried to act as a medium of distribution, but it is a very expensive matter usually to get pigs to Kingston by road or rail and then re-ship them. Then again, we have not the means of keeping pigs in town—it is against the city rules for one thing, and neighbours at the office yard object. We have had a great deal of enquiry, and we know that many are anxious to get good stock at present, but we do not see any way out of the difficulty. We give an instance of the difficulty. The parishes

of St. Ann and Portland are not far apart by sea, but imagine the expense to get pigs over by road from St.. Ann to Buff Bay direct or first by road and then by rail from Ewarton round. Pigs are not easy animals to handle. We have pretty much the same difficulty with goats.

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MUSHROOMS.—After the recent continual rains a great many different varieties of Mushroom-like plants sprung up in pastures, old cane trash heaps, and so on, and correspondents wrote asking us if there was any rule for finding out which kinds are edible. We do not know much about these Fungi, as to which varieties are edible and which are poisonous. In Great Britain the true Mushroom is the only Fungus that is eaten. There, everyone is mortally afraid of eating any other Fungi in case they should be poisoned by them. In Italy—we see it stated by a contemporary—it is believed that there is only *one* Fungus that is *not* good for food. In the continent of Europe a great many different varieties of Fungi are used for food—the famous Truffie is one variety.

A little more knowledge might open up for us a useful source of food to add variety to our dietary. As a general rule, it is stated that Mushrooms growing under trees should be avoided. We do not know any rule for judging whether any variety of Fungi is good for food by the appearance of it, but if when cooking a silver spoon is thrust among the Fungi and it turns black, it is said to be a sure sign that it is not good to eat: but we do not know about this from experience.

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GERMAN PRODUCTS.—There are two products of Germany that we are interested in which can hardly be had now. One is Potash used in Fertilizers. Almost the sole source of the commercial Potash Salts sold under the terms Kainit and Muriate of Potash which form important ingredients of every complete Fertilizer, was Germany. In every part of the world where Fertilizers are used, manufacturers and farmers have been looking around for new sources of Potash, and it is said beds of salt rich in Potash have been discovered in Texas U.S.A. Wood-ashes contain a large proportion of Potash, but then woodashes are not available in such large quantities as are required. We here, however, should save all our woodashes carefully, and use them on our growing trees, especially cocoa and coffee.

Another product which has of late years become familiar to us, being issued from the Government Laboratory in small packets to help expel worms in animals, is Thymol, a well known antiseptic. We see it stated that since the War the price has increased from 5/- per lb. to 21/6. However, this can be made from the seeds of a plant grown in India and also from a plant comparatively common in Cyprus, and in a short time supplies will be got from these sources.

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CORN.—Every year we seem to have more enemies attacking our corn, perhaps because the growing of corn is more widespread and possibly too, because it is a higher bred grain we are using. The chief of these are caterpillars in some form. First, the cut worm slices the young growing corn through when it is about 4 to 6 inches high. Then a "worm" or caterpillar attacks the heart of the corn and the leaves also; this is a very common pest but does not do a very

great deal of harm in the end. Thirdly, the Corn-ear worm attacks the young cob, feeding its way into the tip of the ear; and fourth we have another worm which we never observed before until this year, which eats into the heart of the stalk, making a tunnel right up through it. We think the cut worm is the most serious of the lot, for if the corn starts out vigorously, it seems to withstand the attacks of the others fairly well. Dusting with Paris Green and Lime in the same way as is done to cotton and tobacco will get rid of the caterpillars attacking the heart of the corn; or probably Arsenate of Lead would be better. We tried Arsenate of Lead in paste form, dissolved in water, and sprayed with a small hand spray pump, and it acted very well but certainly was not economical. Buying the Arsenate of Lead in larger quantities it would come a good deal cheaper, but probably the powder form of Arsenate of Lead mixed with Lime would be cheaper still to dust on the plants. All these worms or caterpillars are hatched from eggs laid by moths. We have sent samples of all the worms on to the Entomologist.

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CORN.—“Early plowing is the thing for corn. It gives one time to work the ground down well and kill a few crops of little weeds before the corn goes in. Cultivation is much cheaper before planting than afterward. This early and repeated stirring of the soil seems also to increase bacterial action, so that plant food is set free faster. At all events corn planted on thoroughly prepared land grows remarkably fast—and it yields heavily. From this time on through the summer exposed ground if solid loses moisture very fast. The water it now contains is just as good as any for growing plants. The sensible course is to keep it in the soil rather than depend upon chance showers to supply the corn with a weekly watering. With a corn crop well planted on a fine seedbed we may expect a fair yield in spite of subsequent freaks of the weather. A good thing about it is that preparing for drouth also prepares the land to soak up a great amount of water whenever it rains.”—The Breeders' Gazette, Chicago.

The next planting of corn will begin about the 15th of August on to the same date in September (speaking generally if rains do not come to suit planting.) July is the month to begin preparations. Those who fork the land turn it over in July, those who only fork holes do so in July. Leave them open. Then when planting, draw earth in, firm it down, plant cover and firm down again.—ED.

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CUT WORMS.—We also found this year cut worms commonly—not rarely as before—attacking “Irish” potato plants, cutting the young plants off just when they are about 4 to 6 inches high. These potatoes were planted near corn, and we do not know whether they are the same as attack the corn, but specimens have been sent on to the Entomologist. This Officer will be kept a very busy man for a good long time apparently.

A root rot or “blight” also attacked “Irish” potatoes, in fact, more than one kind of rot apparently, as the Microbiologist reported on specimens sent him.

We need a change of soil for corn and potatoes, and heavy manuring also for the potatoes will become a very pressing need. With strong rich soil for the potatoes, the young plants start off rapidly and with such vigour as to get beyond the attacks of pests.

GUINEA GRASS.—After the first heavy rains we had in the beginning of June, millions of small moths appeared in some districts. These are the moths that lay the eggs that hatch into the caterpillars which eat Guinea Grass and sometimes wipe out large fields leaving nothing but the seed stalks. The second heavy rains of June washed eggs and young caterpillars off, otherwise we would have had a visitation of caterpillars. Now more butterflies are seen in hosts again. It is not practicable, we think, to use Paris Green or Arsenate of Lead on large fields of Guinea Grass, as these caterpillars do not appear to move from one field to another, but hatch from eggs laid on the leafstalks in each field. It might be practicable, whenever the first attacks of the caterpillars are seen, to cut all the Grass, cart it away and dry it as hay; but this would be expensive, and it would require to be figured out whether the dried grass or hay fed at leisure to stock, compensated for the labour of cutting and carting. It ought to be taken into account, however, that in this way millions of caterpillars would never come to the pupa stage, and so would never hatch out into moths. The whole life history of the moth and caterpillar appears to be only 39 days. The moth lays eggs which hatch into caterpillars; these pupate and develop into moths and so on.

In one of our JOURNALS, a correspondent remarked that when the little birds we know as "Pinks," and which are unfortunately shot and eaten as "titbits," come down in clouds in the month of October, they landed on a field of Guinea Grass which had just been attacked by millions of caterpillars, so it was expected that the Grass would be eaten up in a night; the next day after the Pinks settled there were practically no caterpillars. "Pinks" were only known before as seed eaters.

We want to find out all the different kinds of birds which eat these caterpillars and encourage them. This is another task for the Entomologist and he would be greatly helped if everybody gave results of their observations and experience.

FROGS AND CORN.—Very frequently it has been stated by small growers of corn that frogs destroy the young corn by eating it. The closest observation—going out into the fields at night and in the early morning—never showed any damage to any corn we ever had that could be put down to frogs, except that where there were in large numbers, the frogs found the corn holes, especially after rains, nice cool places to burrow in, when of course, they disturbed the corn that had just started growing or was a little above the ground; and we have often stated our conclusions in reply to statements that frogs ate young corn. We have never seen it stated too, from any part of the world that frogs ate any vegetable material whatever—they consume insects. However, it is well not to be too dogmatic in agriculture. Mr. Schleifer, the Agricultural Instructor, has corn planted in Clarendon by the banks of a river, and he has stated from his own personal observation at that night he has found frogs eating the corn, and on opening some he has found the young corn shoots in their stomachs. We reported this to the Entomologist, and it is also new to him that frogs ate vegetable matter in this way. Further investigation, however, will be made. Certainly if a carnivorous animal like the Mongoose can become a fruit eater and eat pine-

apples and bananas, and when dogs, ill fed at home, make raids into cornfields when the cobs are ripening, jump up, tear down the cobs and eat them, we are prepared for any changes. Dogs too, scrape out the seed corn just planted and eat the grain.

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BRANCH NOTES.

ORACABESSA (St. Mary.)—The meeting was held in the Oracabessa Schoolroom on Tuesday evening, May 11. There were present the President, Vice-Presidents, Secretary and twenty-one members. The Secretary read the Correspondence, among which was a letter from Mr. Cradwick regretting his absence on account of his having to judge the Prize-Holding Competitions. He, however, hoped to be present at the June meeting. The reports of Authorized Persons were next made which shewed one arrest and a conviction; and two arrests, but both parties were also liberated. It was suggested that the Secretary write and ask for Pamphlets shewing extended power of Authorized Persons. At this stage Mr. Watts, one of Mr. Cradwick's Assistants, who was present, was introduced and welcomed. After a few introductory remarks, Mr. Watts began his lecture on Cocoa. He spoke very forcibly on the opening of the Roots, shewing reasons for opening and also method of doing it. He next went into the method of Pruning, emphasising the necessity for having all cuts made smooth and properly tarred over. The Pods should also be cut off with a sharp knife as wringing pods off encourages disease and lessens bearing. After closing his lecture on Cocoa, Mr. Watts spoke on the Rubber Industry, shewing samples of Rubber that was manufactured here. It was found that rubber manufactured in Jamaica is as good as any produced in the East. He explained very carefully the method of tapping the rubber, and promised to give an estimate of the cost of the growth and manufacture of Rubber at his next visit. A vote of thanks to Mr. Watts was accorded. The President suggested that Mr. Watts be asked to take up some subject for open discussion. The correspondence dealing with the Produce Protection Law was read after which the subject was much discussed. Mr. Bramwell objected to any change, on the ground that an increased License would cause a monopoly, which is very undesirable, as planters are likely to suffer in the long run. Mr. Webster was very much in favour of an altered law to prevent Cocoa being sold in pods. The President pointed out that Mr. Webster's suggestion would handicap large produce dealers, who have proper equipment for curing cocoa. It was eventually moved that the License be not raised. The President also directed the Secretary to write and enquire what is meant by proper equipment. The question was left open for the next meeting. Mr. Louis McGregor was enrolled as a member of the Society. After deciding that the hour for the next meeting be 4.30 p.m., the meeting adjourned.

J. H. WYNTER, Secretary.

UPPER METCALFE (St. Mary.)—The Annual Meeting was held on the 15th May. The Chairman, Assistant Instructors Gunter and Watts, fifteen members and the Secretary were present. The Secretary gave a brief report of the Society's work for the year just ended. Rev. Mr. Hastings was unanimously re-elected President and Mr. W. T. Edwards, Secretary and Treasurer. Mr. S. Bell was elected V.P. The Authorized persons were asked to report on their work during the last quarter. One arrest on a case of suspicion, dismissed with doubt, and one conviction. The question of selling half green cocoa pods was discussed when Mr. Gunter in a very clear manner, showed that he had experimented on the half green, the ripe and the over ripe pods, and had found that the result was greatly in favour of the ripe pods. All present promised to discourage the selling of half green pods. Mr. Watts had a very interesting talk on How to make the Meetings interesting. He showed how at one of the meetings of a certain Branch a member was able to give his experience respecting the use of Jey's fluid to keep away Bats from dwelling houses. At next meeting the President will move: "That Meetings of this Branch Society be held at Brainerd and Lucky Hill alternately." "That this Branch secure for the use of its members a set of pruning tools." The President will at next meeting lecture on the cultivation of yams. W. T. EDWARDS, Secretary.

PORT ROYAL MOUNTAINS (St. Andrew.)—The regular meeting was held at the Mt. Fletcher Schoolroom on Saturday, 22nd May. The Rev. E. Mair presided. There was a fair attendance of the members. The President stated that the Books for the Penny Bank in connection with the Society had arrived and the Bank would be started immediately. A discussion arose *re* a ram goat for the Society, and it was decided that the General Secretary be written to to secure one as early as pos-

sible, the Society having already paid for it, still desires that it be obtained. Only one new member was admitted. The election of officers for the current year, the Rev. E. Mair was elected President, and Mr. J. A. Whitworth, 1st V.P. Messrs. J. A. Whitworth and N. A. Grey were appointed Treasurer and Secretary respectively. The Funds of the Society were considered in a healthy state, standing at £5 16s. 4d. The Secretary was instructed to send in the affiliation fee early to the General Secretary. There was no report from the "Authorised Persons" and so the Society believes that Praedial Larceny is on the decrease. "Authorised Person" Simon Williams complains that for duties performed, he cannot get his pay though he has made several applications for it. A lively discussion took place. Several members expressing the baneful effects when "Authorized Persons" get so much trouble and annoyance in having their claims met. It was decided that the Secretary writes to Mr Barclay on the matter asking that attention be given the matter from the proper source. A letter of resignation was read from the late Secretary, Mr. H. J. Crooks. The resignation was accepted and instruction given that he be so informed. The Secretary was further informed to remind the Agricultural Instructor of the time of meeting so that he may be in a position to attend. The President gave a short address to the members on the value of cultivation and the importance of combination, for which he was heartily thanked. The Secretary tried to impress the benefits of a definite plan in coming to the meetings, and the help it gives to each member. The meeting then adjourned till June 27th.

N. A. GREY, Secretary.

MAIDSTONE (Manchester).—The annual meeting was held at Nazareth on the 25th May. There were present: The Rev. W. C. Morrison, presiding; Thomas Powell, Esq., Instructor; Rev. S. J. Swaby (visitor) who subsequently became a member. 13 regular members and the Secretary. The President extended a right hearty welcome to the Rev. S. J. Swaby, the new Minister at Nazareth. In replying Mr. Swaby expressed his pleasure in being present, and promised to do his best in the interests of the agricultural work of the district. The Secretary read correspondence from Mr. Barclay dealing with new list of members for the financial year; also letter from the Inspector of the Police Force, submitting the names of Easton Peart and Simon Copeland as "Authorised Persons." The applicants were considered fit persons and were duly nominated by the Branch. Their names are to be sent up to the Secretary of the Agricultural Society. The next business was the Secretary's and Treasurer's report. After some discussion the reports were adopted. It was agreed that the Managing Committee meet before the 30th June and consider steps to be taken with members who had not paid their local fee for the past year. A paper on "Perseverance" was read by Mr. N. A. Riley. It was exceedingly "pithy" and gave evidence of much thought on the part of the writer. A hearty vote of thanks was accorded Mr. Riley. The Instructor urged on all present the necessity of heavy mulching of all permanent crops. He showed the advantages of heavy mulching and how and when it should be applied. The meeting enjoyed a Duet "The Happy Farmer", sung by the Misses Campbell. The ladies were accorded a hearty vote of thanks. The election of officers now took place. Mr. Powell was asked to take the Chair during the election. It resulted as follows: President, Rev. W. C. Morrison re-elected 1st V.P.; Rev. S. J. Swaby, 2nd V.P.; Mr. C. Josephs, Secretary and Treasurer, Mr. J. A. Maxwell, re-elected. Mr. Morrison promised to report to the Superintendent of Roads the frightful condition of the roads in this part of the parish. All save one of the Authorized Persons were able to report that Praedial Larceny was on the decrease in their sphere of operation.

J. A. MAXWELL, Secretary.

TROJA (St. Catherine).—The regular monthly meeting was held on Thursday, the 27th May, 1915, at 6 p.m. There were present: The Agricultural Instructor and 12 members. Mr. Mossman, the Instructor referred to the correct method of planting yam heads, and asked Mr. Cawley for a bit of land for the purpose of demonstrations. This was promised and the demonstration was fixed to take place on the 25th June at 5 p.m. Mr. Mossman also promised to go to the prison Farm to procure potato slips of the best bearing varieties, and pumpkin seeds for distribution. He also promised to give lectures on diseases of cocoa and coconuts. Mr. Cawley spoke on the larceny of cocoa in pods. He found that cocoa in pods was used as a means of barter; that goods of a trifling nature were exchanged by shopkeepers; that every Chinaman buys this article, either legally or illegally, and that unless the Government came to the rescue, the planters would suffer incalculable loss. Continuing, Mr. Cawley said that children who were allowed to sell or exchange cocoa pods for lunch, became demoralized, and the next generation would grow up a band of thieves; that this desperate state of things was largely encouraged

by parents and guardians; that the cocoa industry was more important than the rum industry, and that as the rum industry was hedged in by stringent laws, it was of paramount importance, that the cocoa industry should also be protected. Mr. Mossman following, said that in 9 out of every 10 instances, cocoa pods were sold at shop places in a green state. He had a strong objection to the pod license, and would like to see it abolished altogether, or only sold in lots of 100, and not less. By doing this he was of opinion that the stealing of cocoa would be checked to a great extent. The President endorsed the opinions of the former speakers, and added among other things, that he regretted the system very much although he was a buyer himself, because it was an infamous and accursed one. Some buyers would buy the green pods, cut one end of each, lean them up, pour water in, and set up fermentation to soften the inside. Some even bury the green pods for the same purpose. A Committee was formed to meet on the first of June to draft some recommendations to the Government, through the parent society *re* the Produce Protection Law. The Meeting was brought to a close by the singing of the National Anthem.

E. T. THOMPSON, (for Secretary.)

DALLAS AND CONSTITUTION HILL (St. Andrew.)—The annual Meeting of the Society was held on the 28th May. There were twenty members present, the Instructor and the Secretary. The usual work of the Society was attended to, and the election of Officers to serve for the current year. The following resolution was moved and agreed to: "That seeing the importance of the Sub-Officers' Guide a copy be brought and kept by the Secretary for the use of members of this Society." Addresses were given by the Instructor on Mulching and Manuring, and by the President on Dry Weather Cultivation as sequel to one given at the Hope Farm School by Mr. E. J. Smith. It was then moved and agreed to, that: In view of the necessity for more extensive demonstration in Dry Weather Cultivation in this District, be it resolved that the Instructors' Committee be asked to permit the Instructor to spend a whole week in this District in order to foster the work. There were three new members enrolled.

J. T. BROWN, Secretary.

KELLITTS-CHAPELTON (Clarendon.)—A meeting was held on the 28th ultimo. There were present, the President, Vice-Presidents, Instructor, seven members and the Secretary. The Instructor read his report from the JOURNAL *re* Barbecue Competition. The Cocoa Competition will come off in July. The Instructor lectured on Corn, referring to the lectures he attended at Hope, urging co-operation among members to plant corn so that a depot could be established in the district, and thus ensuring better prices for this product. He urged the members to support native industries. He also spoke on Guinea Corn. The President, Mr. Bailey, Mr. C. Scott and Rev. R. J. McPherson also spoke. The ram from Rock River will be here in June, under the Instructor's care, and it was agreed that members have his use for 1/- and outsiders 2/-. Correspondence were read and discussed *re* delegate to the Half Yearly Meeting, the Secretary was asked to attend, and promised to if he found it possible. It was agreed by the members that the next meeting be held at Kellitts on the 17th June at 5.30 p.m. Mr. Sweeney was proposed a member and paid in his sub. Four members paid in their subscriptions, and the meeting terminated.

J. J. SMELLIE, Secretary.

BLACK HILL (Portland.)—The regular monthly meeting was held in the school-room on the 29th May. There were present, six members and the Secretary. Letters from Mr. Barclay were read and discussed. The question dealing with Local Cocoa buyers was brought up. All the members expressed their desire of having a local buyer. The Authorized Persons, Messrs. Jacob Mitchell and Henry Mitchell, gave in reports to the effect that they have been executing their duties faithfully and well but are hampered by not having handcuffs and badges. The matter of sending a delegate to the Half Yearly Meeting was left to be discussed at the next meeting. The meeting then adjourned for the second Saturday in June.

H. A. L. CAMBELL, Secretary.

WHITEHOUSE (Westmoreland.)—The monthly meeting was held on the 1st. June. The President occupied the Chair; eleven members were present. The Instructor and several lady visitors. After the preliminaries, the following business was transacted, viz.: (1) A delegate was elected to attend the Half-Yearly General Meeting on the 15th July. (2) The adoption of resolutions for a (a) Special Competition and (b) the eradication of pests which tend to invite and harbour sickness. (3) Discussion on a water supply which resulted in the decision to call a public meeting for the purpose of deciding the means and ways to accomplish same. (4) Instruction to the Secretary to write the Parochial Board about the clearing of

Heath Spring. (5) Adopting a resolution endorsing the Jamaica Contingent movement and subscribing to the Fund. (6) Decision to read and discuss for information some of the Laws in the Sub-Officers' Guide. M. HEWITT, Secretary.

BAXTER'S MT.-GEORGES HOPE BRANCH (St. Mary.)—The monthly meeting was held in the Baxter's Mt. Schoolroom on Tuesday, 1st. June. Mr. E. Gunter Assistant Agricultural Instructor was present. Arising from the minutes was a discussion on Co-operation. Mr. Gunter said he was in favour of co-operation; he advocates such moves, but co-operation must be progressive and successful. Proper organization is essential. Discussion on the Scheme followed and it was decided to refer it to the next meeting. The meeting then discussed the necessity of having more authorized men and their qualification. It was shown that when the Society started, it was young in experience and appointed many men who were found to be inactive and one or two illiterate. It was suggested that illiterate men ought not to be Authorized Persons. If Authorized Persons are illiterate, but yet active and show a good account of themselves, their names might be retained, but in future only men who can read and write will be appointed. New Authorized Persons were nominated and the names of Messrs. W. C. Marsen and Henry Elliott voted out. Authorised man, David Cacey, gave in his report. He made one successful arrest during the month. It was moved and unanimously carried that a delegate from this Branch be sent up to the Half Yearly General Meeting, and Mr. T. A. Dean Secretary, was appointed. The Instructor then addressed the meeting on the Cocoa Industry. Bad Pruning and Gormandizers are among glaring defects found in the cultivations here. Tearing off and wringing of pods are evils practised. He demonstrated and showed how to prune. Pods must not be torn nor wrung off. He lectured lengthily on Pod Rot, explaining the cause and told what precautions must be followed to prevent this. Scattering of broken pods in the cultivations, rotting here and there in heaps must be discontinued. The members were deeply interested in the lecture. They took the hints and many gave orders for Pruning Knives. The Branch decided to get up a consignment of walking sticks for the soldiers in the Front, and to purchase a Ram for the Society, if there are sufficient funds. Other matters being disposed of the meeting stood adjourned. T. A. DEAN, Secretary.

FAR ENOUGH (Upper Clarendon).—A meeting was held at the Good Hope School Room on Wednesday, 2nd June, 1915, when they were present: I. A. Morrison, Esq., Vice-President, eleven members and the Secretary. The affiliation fee of 5/- has been paid to the Parent Society, and that a revised list of members had not been forwarded because all the members had not yet paid up their subscriptions. Read letters from Mr. Barclay dealing with Produce Protection Law, publishing of Branch Notes, and taking out of monthly JOURNALS from Post Office, also a circular relative to the sending up a delegate from this Branch Society to attend the Half Yearly Meeting of the Parent Society in Kingston. It was proposed and agreed to that Mr. Benjamin Thomas of Rodon Hall, a member of this Society, be deputed as the delegate for that purpose. It was also proposed and agreed to, that the sum of £1 1s. 0d. that was to be given as a donation from this Branch to the War Fund, but which was not due, must now be remitted to Mr. Barclay as a donation to the Jamaica War Contingent Fund, subject to Mr. Barclay's approval. The Secretary was instructed to write all those members, who have never attended any of our meetings, with the request that they will now do so, and also pay up their subscriptions for 1915-16. It was also proposed and agreed to that a representation be made to the Parent Society, in order to assist the small cultivators to obtain a better price for their sugar, that the Government might erect at Far Enough centrifugal machinery for the purpose of refining raw sugar, and to request the Parent Society to use its influence with the Government for the support and adoption of the scheme if at all practicable. It was also proposed and agreed to, that the Society purchase out of its funds a grindstone for the use of the members. The Secretary was instructed to write Mr. Barclay, to enquire of him if there are any markets home or foreign, where Cassava Farine can be sold at a profit.

J. C. ROBERTSON, Secretary.

BELVEDERE (Portland).—The meeting was held on June 3rd. Those present were: The Vice-President, Treasurer, the Authorized Person, the Secretary, and five other members. A lengthy discussion arose out of the correspondence. Secretary was instructed to write Mr. Arscott *re* pigs, and Mr. Barclay *re* grind stones, and copies of monthly forms for Authorised Persons. The Produce Protection Law was discussed and all agreed that the License remains as it stands and let cocoa be bought and sold, "with restrictions." As the factory is far, people

would suffer and when the license is increased, the big man alone buying he is likely to offer any price he deems fit. Moved by Mr. Lowe, seconded by Mr. Whorms, the officers retain their positions as last year. Carried. Vice-President thanked members. Authorized Persons said district appeared quiet at present. Secretary read a paper *re* importance of members attending meetings. He will read report of year's work at next meeting. Motions for next meeting from: W. Neysmith *re* Bridges, and J. Lowe *re* Wood Pecker. Discussion for next meeting: Corn or Banana, which is more valuable. R. J. LAWSON RICKETTS, Secretary.

CAMBRIDGE (St. James).—The usual monthly meeting took place on the 5th June. There were present: Messrs. E. E. Myers (President), the Secretary, the Treasurer, Mr. J. Briscoe (Instructor) and 9 other members. A circular from Mr. Barclay *re* the July Half-Yearly Meeting of the Society was read and considered. Mr. Briscoe was asked to represent the Branch at the meeting and he consented. He will be asked to speak strongly and forcibly on the great necessity and desire for the extension of time in regard to refunds of loans to Loan Banks. Mr. Briscoe gave an interesting sketch of the course he recently attended at Hope. He asked members to send to him all suspicious insects found on their crops, and he will send them to the Entomologist for observation, etc. The Authorized Persons gave in reports. Mr. Gray was instrumental in the arrest of a praedial thief who has gone to prison, and Mr. Reid had arrested one for alleged larceny of banana, who is awaiting trial. The Secretary was asked to apply to the General Secretary for copies of the list of articles the theft of which constitute Praedial Larceny, for guidance of our Authorized Persons chiefly. The matter of a J.P. in the district was referred to and the conclusion arrived at that the Custos has treated the Branch with discourtesy. He had promised to give the matter due consideration; according to the newspapers a gentleman has been appointed and he has not notified the Branch of the appointment. This gentleman and others quite eligible were not suggested by the Branch in the petition to him, as from the nature of their connections with the district they may be removed at any moment. Those suggested have been passed over. The Jamaica Contingent Fund was referred to, and all present promised to assist in the efforts on foot to collect from Cambridge at least as much to send one man to the front. Mr. Briscoe said he still has cocoa plants for distribution, and orders were booked. National Anthem. R. M. ARNOLD, Secretary.

BROWN'S HALL.—The regular monthly meeting was held in the Schoolroom on the 9th inst. There were present: The Rev. G. L. Young (President) 2 Vice-Presidents; H. L. Mossman, Instructor, six members, ten visitors and the Secretary. Correspondence was read from the Secretary of the Parent Society *re* the sending of a delegate to the next Half-Yearly General Meeting. The Rev. G. L. Young was elected to attend. The Annual Report of the work of the Society was read and adopted. The Authorized Persons were present and gave an account of their work. Cornelius Graham reported that he has neither received his badge nor handcuffs since his appointment in September, 1913. The President suggested that the member bring their Journals with them to the meetings in future as some time could be devote to reading paragraphs that would be beneficial to all. The Instructor in addressing the meeting gave some account of his attendance at the recent Agricultural Conference. He spoke a good deal on Yam Cultivation, and at the next meeting he has arranged to give a demonstration on the planting of yams in different spots. Seven members paid in their subscriptions after which the meeting was adjourned.

J. M. COUSINS, Secretary.

ENFIELD (St. Mary).—The regular monthly meeting was held in the Schoolroom on the 9th June, 1915. The meeting began at 3.45 p.m. There were present: Rev. W. S. Taylor, President; two Vice-Presidents, the Treasurer, the Secretary and 10 members of the Branch. Several persons wrote to the Branch, complaining of the increase of vagrancy and the indulgence in the use of indecent and lewd language; and asking whether the Branch could do nothing to suppress the evil. The Branch is of opinion that more strict Police Supervision is needed; and that if the Government would return to the old system of paying the District Constables at £1 per month, the men would be induced to move more actively in their district. The correspondence from the Secretary of the Parent Society *re* Produce Protection Law, came in for a very lively discussion. The subject being a very important one, and calls for the greatest care, it was found necessary to postpone it, until a copy of the Law could be procured, and placed on the table for guidance of members in making their recommendations. The Secretary was instructed to write the Secretary of the Parent Society asking him to loan us a copy of the Law. The roll was called and the meeting was brought to a close. J. Z. JOHNSON, Secretary

The Journal

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

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AUGUST, 1915.

No. 8.

BOARD OF MANAGEMENT.

The usual monthly Meeting of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 11 North Parade, Kingston, on Wednesday, 14th July, 1915, at 2 p.m., Present: His Excellency Sir Wm. H. Manning, K.C.M.G., C.B., (presiding), Sir Jno. Pringle, K.C.M.G., Hons. L. J. Bertram, C.M.G., H. H. Cousins (Director of Agriculture), D. Campbell, Geo. McGrath, R. P. Simmonds, S. S. Stedman and J. R. Williams; Messrs. Robt. Craig, A. W. Douet, A. C. L. Martin, E. W. Muirhead, Adam Roxburgh, Archibald Spooner, Conrad Watson, Rev. W. T. Graham, and the Secretary, Jno. Barclay.

Apology for absence was submitted from Mr. H. Q. Levy.

The Minutes of the previous Meeting having been printed and circulated were taken as read and confirmed.

The following matters arising out of the Minutes were considered:

(a) *Pod Rot and Canker of Cocoa*.—The Secretary said that this matter had been held over from the previous Meeting. He would re-read the letter from the C.S.O., asking for consideration of the subject:—

No. 4146-4915.

31st March, 1915.

"I am directed by the Governor to state, for the information of the Agricultural Society, that the Director of Agriculture has recommended, for the consideration of His Excellency, that "Pod Rot" and "Canker" of cacao shall be added to the list of infectious plant diseases under Law 3 of 1915, and that rules should be made for the sanitary treatment of all cacao pods after the beans have been shelled, and of all diseased pods, as also for the excision and tarring of canker in affected trees.

2. "I am to ask that the Committee of Management of the Society will be so good as to give the proposal of the Director of Agriculture their early consideration, and favour His Excellency with their advice on the matter."

(Sgd.) F. L. PEARCE,
Actg. Asst. Colonial Secretary.

The President said he should like to hear the opinions of the members of the Board of Management on the matter.

Mr. Craig suggested that they should hear what Mr. Cousins (Director of Agriculture) had to say first.

Mr. Cousins said it had been impressed upon him that they should have new rules for the sanitary treatment of cocoa pods and compulsory treatment of Canker of cocoa. He generally supported the proposal to bring Pod Rot and Canker of Cocoa under the Protection from Disease Plants Law. (The remarks of the Director of Agriculture and a letter from him on the subject of Canker of Cocoa, are published in full on another page of this JOURNAL).

Mr. Craig contended that the proposal, if authorized, would certainly prove harassing and create a false impression as to the condition of the cocoa industry in Jamaica; that Canker was not confined to cocoa trees alone, but was also common to Mango, Avocado Pears, etc., and so long as these trees remained a constant source of infection he could see no sense in the proposal; that the planter was quite alive to his own interests and was prepared to deal with Pod Rot and Canker, while the small settler was being taught how to deal with these diseases by the Agricultural Instructors. He would support the proposal for the disposal of broken cocoa pods, provided every purchaser of cocoa in the pod was dealt with as well as the planter. He did not think that a Penal Law should be invoked, unless, it could be shown beyond question that a plant disease was likely to, or might, as in the case of Panama Disease ruin any cultivation. The study of diseases of cocoa was still rudimentary. He would oppose the proposal.

The Rev. Mr. Graham read a letter from a prominent cocoa planter which stated that 'draconian' measures, such as were suggested, would not help by themselves, as they apparently only dealt with effects not causes.

Sir Jno. Pringle also held that the present time was inopportune for introducing such measures. They were all still in the experimental stage as regards cocoa.

Mr. McGrath also opposed the proposal.

Mr. Campbell supported the proposal and said that just as measures had to be taken as regards Panama Disease, they should take similar measures to deal with Canker of Cocoa.

After discussion the President said he took it that it was the feeling of the meeting that no legislation was desired to deal with Pod Rot and Canker.

The Meeting agreed.

(The discussion on this subject is published on page 292.)

(b) *Praedial Larceny & Flogging*.—The Secretary said he had been asked at the previous meeting of the Board to get a return from the Inspector General of the number of cases of flogging over a certain period, say the year 1914; he had asked for this but had not yet got it.

(c) *Sugar—Report from Staple & Minor Products Committee*.—

The Secretary said the Papers circulated to the Staple & Minor Products Committee with regard to the resolution to be sent to the West India Committee *re* Sugar, had not yet been returned, but it had been left to that Committee to deal with the matter without reference first to the Board, and he expected to get the Papers back within 2 or 3 days when the resolution would be sent forward to the Colonial Secretary.

The following letters from the C.S.O. were submitted:—

(a) *Re Flogging in Trinidad*.—

No. 7930-8086.

21st June, 1915.

"In continuation of the letter from this Office, No. 7315-7794, dated the 8th instant, I am directed by the Governor to transmit for the information of your Society the accompanying copy of a further Return of Corporal Punishments ordered in Trinidad during the two years ended 31st March, 1915, for Praedial Larceny and offences under the Sale of Produce Ordinance of that Colony."

(Sgd.) G. M. WORTLEY,

Ag. Asst. Colonial Secretary.

The Return showed 21 cases of Corporal Punishment for Praedial Larceny for the two years ended 31st March, 1915.

(b) *Re Report on Rules for Sale of Crown Lands.*—The Secretary said he had reminded the C.S.O. that a Special Committee of the Society had sent in a Report with suggestions as regards the Rules for the Sale of Crown Lands, which had been referred to a Special Committee of the Legislative Council, but no further acknowledgment had yet been received by the Society. The following was the reply from the C.S.O.:—

No. 8661-9610.

8th July, 1915.

"With reference to your letter, No. 1370, dated the 29th ultimo, I am directed by the Governor to inform you that His Excellency understands that the recommendations of the Jamaica Agricultural Society with regard to the scheme for the sale of Crown Lands have been considered by the Special Committee of the Legislative Council on the subject, but that the report of the Committee has not yet been received by His Excellency."

(Sgd.) ROBT. JOHNSTONE,
Actg. Colonial Secretary.

Authorized Persons—Causes for striking off List.—The Secretary said he would now submit letters from the Inspector General giving the particulars he had been asked to get at the last meeting of the Board, as follows:—

No. 454-1895/15.

16th June, 1915.

"With reference to the latter part of your letter, No. 397, of 28th April last, I now forward to you a Return of the number of 'authorized persons' struck off the list, showing causes for which they were struck off.

2. "As this information is always supplied on your being notified of the striking off of any 'authorized persons,' you will, in future, be able to furnish similar Returns from the reports sent you, from time to time, by this Department."

Return showing the number of "authorized persons" struck off the list, and the cause for striking them off, to 15/6/15.

Dead.....	30
Left the Island.....	23
Left the District.....	5
Joined Rural Police.....	45
Incapable of Duties.....	17
Improper conduct (various).....	12
Resigned.....	12
Joined Police Force.....	1
Refused to accept appointment.....	4

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No. 520-3013/15.

14th July, 1915.

"I have to acknowledge the receipt of your letter No. 35 of the 10th instant, and in reply to inform you that, of the twelve cases of dismissal of Authorized Persons for Improper Conduct, seven were the results of convictions in Court for the following offences:—

- 1 for Buying Produce without License.
- 2 „ Assaulting the Police.
- 1 „ Improper Conduct in a Spirit Shop.
- 1 „ Committing Assault.
- 1 „ Having in possession unduty paid Rum.
- 1 „ Stealing growing plants.
- 3 were dismissed for receiving money and releasing the arrested person, and 2 for wilful neglect of duty.

2. In the last five cases I revoked the appointments under the provisions of Law 4 of 1909."

(Sgd.) A. E. KERSHAW, Lt.-Col.
Inspector General of Police.

Mr. McGrath said that these Returns were what he had been asking for, for some time, and he thought the particulars should be published to satisfy those who did not know how and why "Authorized Persons" were relieved of their appointments.

The Secretary said that he would be able in future to supply these statistics himself, as he was now keeping a book with the "Authorized Persons" of each Branch, and the reason for their being struck off would be noted in it.

Prohibition of the Importation of Hay, etc.—The Secretary said just after the last Board Meeting he had received the following letter, copy of which he had forwarded to the C.S.O., and he now also submitted the reply from the C.S.O.:—

17th June, 1915.

"Our Mr. Brandon who has just returned from the United States finds that though the prohibition against the importation of American Hay still exists here, large quantities of this article are being exported to the United Kingdom on certificate declaring the point of origin. From this point a clean B/Lading is issued showing the section of country from which the hay is reaped and the certificate also shows that the Foot and Mouth Disease have not existed for the past four months in that particular district.

We will be pleased if you would place this before your Board and suggest to the Government that we be allowed to import American Hay under the same conditions.

Our statements can be verified by the British Consul in New York.

Awaiting your early and favourable reply."

(Sgd.) H. M. BRANDON & Co.

Reply from C. S. O.—

No. 8740-9342.

10th July, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter, No. 1223, dated the 23rd ultimo, relative to the question of the removal of the embargo on the importation of American hay into Jamaica, which was imposed in consequence of the outbreak of Foot and Mouth Disease in the United States of America.

2. "In reply I am to inform you that before taking steps in the matter, the British Ambassador at Washington is being asked to furnish further particulars with respect to the outbreak of this disease."

(Sgd.) ROBT. JOHNSTONE,
Acting Colonial Secretary.

War Gifts.—The Secretary submitted letter from the C.S.O., dated 14th July, 1915, enclosing acknowledgment from the Secretary of the West India Committee to the Crown Agents for the Colonies, of the War Gifts shipped by the S.S. "Chagres" on the 4th June; also the following letter from the C.S.O. *re* shipment by the S.S. "Manzanares" on the 1st July:—

No. 8596-9824.

6th July, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter No. 1454, dated the 2nd instant, enclosing Bill of Lading for ninety-eight packages of fruit, honey, and preserves, representing a further War Gift from the members of the Jamaica Agricultural Society which you had shipped to the address of the Crown Agents for the Colonies on the S.S. "Manzanares" on the 1st instant.

2. His Excellency desires that an expression of his appreciation of this further kind and thoughtful action may be conveyed to the donors."

(Sgd.) ROBT. JOHNSTONE,

The Secretary said he had further shipped by the S.S. "Coronado" on the 21st June, 25 boxes of Grapefruit. He had also shipped by the S.S. "Manzanares" on the 1st July:

7 Cases of Preserves (containing 410 lbs.)

60 boxes of Oranges.

10 boxes of Grapefruit.

- 1 cask of Honey (containing 28 gallons.)
- 9 cases of Banana Figs (554 lbs.)
- 1 case containing sundry articles of clothing.
- 11 cases of Gifts for individual soldiers (containing Preserves, Tobacco, etc.)

Report from Live Stock Committee.—The Secretary said that the Live Stock Committee had met at 12.45 that day (just before the Board Meeting) to transact business, and they had directed him to bring to the notice of the Board that no Report had yet been received from the Government on the matter of the Society's recommendations. *re* the Registration of Stallions. The Legislative Council had appointed a Special Committee to deal with the matter, the Chairman of which was the Hon. J. V. Calder who had written him that the delay was caused by the death of the Hon. J. M. Farquharson and the absence of Col. Moulton-Barrett from the Island, both of whom were members of the Committee.

The Board directed the Secretary to draw the attention of the Government to this, and to suggest that two new members might be appointed on the Special Committee, so that the matter might receive consideration.

Application for Affiliation.—An application was submitted from Wallingford District near Guys Hill for the affiliation of a local Agricultural Society formed there. This was held over until a report from the Instructor was received.

Secretary's Half-Yearly Report.—The Secretary submitted his Report for the half-year ending 31st March, 1915. Several slight errors were pointed out which were corrected.

Instructors Reports.—The Instructors Reports for the month of June and their Itineraries were submitted and directed to be circulated to the Instructors Committee as usual.

Statement of Accounts.—Statement of Accounts was submitted and tabled.

New Members.—The following new members were elected:—

A. Woods, P.O. Box 14, Belize, B. Honduras.

Henry W. Holgate, Serge Island Estate, Seaforth.

C. W. M. Saunders, Serge Island Estate, Seaforth.

James Marshall, No. 3 Norman Crescent, Kingston.

A. H. Ritchie (Government Entomologist), c/o Hon. Director of Agriculture, Hope, Kingston P.O.

The Meeting adjourned until Thursday, the 19th August, 1915, at 11.40 a.m.

POD ROT AND CANKER OF COCOA.

The following is nearly a full Report of the discussion on this matter at the Meeting of the Board of Management of the Society held on Wednesday, the 14th July, 1915, at 2 p.m., and which is shortly referred to in the Minutes of the Meeting published at the beginning of this JOURNAL:—

The President said he should like to hear the opinions of members of the Board of Management on the matter.

Mr. Craig: We would like to hear Mr. Cousins. (Director of Agriculture.)

Mr. Cousins said certain planters had impressed upon him the desirability of adding the common diseases of Cacao to the schedule of 'infectious' and non-notifiable diseases under the new Diseases of Plants Law. He had therefore submitted to His Excellency for the advice of this Board two proposals, viz.:—

1. That there should be compulsory measures for the sanitary disposition of broken Cacao pods, either by burial, burning or liming.

2. That "Canker" should be scheduled as an 'infectious disease' of Cacao under the new Law and the excision and tarring of the superficially affected areas on the trees be laid down as the prescribed treatment.

It had been represented that a good deal of infection of 'pod-rot' arose from the careless manner in which small buyers and others allowed heaps of infected pods to lie about and serve as a focus for the spread of the spores of the 'pod-rot' fungus.

With regard to the question as to the presence of the fungi causing pod-rot and canker in Cacao upon other trees such as pears, mangoes, guavas, etc., the evidence was that this was not the case.

The 'Phytophthora' causing Pod-Rot and the chief cause of Canker was apparently a fungus peculiar to Cacao. The only cases recorded of this fungus being found on other trees came from Ceylon where Para Rubber Trees and Breadfruit planted among Cacao were found to have been infected with the Cacao disease.

The Microbiologist had not met with any such cases, however, in Jamaica.

There were three organisms which Mr. Ashby had found to be concerned in different types of Canker on Cacao in Jamaica and the commonest of these was the same as pod-rot. Another source of Canker was the "Die-Back" fungus, and the third the "Bonnygate Disease of Bananas" which the Department had recently found to be causing canker in Cacao trees subjected to infection from Bananas.

No cases of the 'Die-back' fungus had been found in Jamaica on plants other than Cacao. Cankers were very common ailments of our trees, but it would appear that they had their own hosts and that many species were at work.

It was true that the Agricultural Department could not at present afford the staff to enforce the treatment except here and there, and the scheduling of these diseases would, at the outset, remain more or less, as an accepted standard of good practice and not of legal compulsion. At the same time, it was only fair to acknowledge that in Trinidad where Mycology had had a start before Jamaica and where Cacao was the chief staple of the country, Pod Rot and Canker had not been dealt with under the Plant Disease Law of that Colony.

Cacao had recently advanced from the position of a minor product to that of a major staple in our exports, and it was therefore important to do everything possible to protect the health of the Cacao trees. At the same time it was not wise to legislate in advance of public opinion.

The President said before Mr. Cousins sat down he would like to hear what would be the effect in practice if Cacao diseases were put on the schedule.

Mr. Cousins said:—"In the first place all broken Cacao pods would have to be disposed of under regulations prescribing their sanitary treatment by burial, burning or liming. With regard to "Canker" the owner would be called upon to cut out any superficial patches of canker on his Cacao trees and to tar the surface.

Under the Law, if an owner failed to carry out the treatment of an 'infectious' disease the Department was authorised to call upon him to do it, or eventually to carry out the treatment at the cost of the owner."

Mr. Craig: Any spraying?

Mr. Cousins: No.

Mr. Craig said: "This is a proposal to interfere with the cocoa planter in his methods of sanitation and the care of his cultivation, and to dictate to him what methods he shall employ in his treatment of the diseases known as canker and pod rot—and also in the disposal of cocoa shells or husks. This proposal, if authorised, will certainly prove harassing, and create a false impression as to the condition of the cocoa industry in Jamaica. If the disease known as "canker" was confined to cocoa trees only, and not, as is the fact, common to many other trees, such as the mango, trumpet tree, avocado pear, etc., there might be some reason in the sug-

gestion: but so long as these other trees are immune from treatment, and remain a constant source of infection, I see no sense in this proposal. It is, I think, beyond question impossible to eradicate canker and pod rot from any cultivation of cocoa, at all events for any length of time—both will always be present, in my opinion, and it is the interest of the planter to repress both. He is quite alive to the necessity of this and, for the most part knows how to treat both diseases, and is anxious to obtain the best advice available—on all the diseases of cocoa—while the small settler who has cocoa, has been and is being taught how to deal with them, by the Instructors of this Society.

As regard the disposal of broken cocoa pods, I will support that proposal, providing it is dealt with comprehensively and economically. I mean if an order is made it will apply not to the planter and small settler only, but to every purchaser of cocoa in the pod. To help in this matter, and also to check the theft of cocoa from the tree—which is rampant—I consider that a licence to purchase cocoa, in the pod, should only be granted to persons who possess proper premises and appliances for curing cocoa—these premises should be subject to inspection at any time and a book kept with particulars of every purchase made. It is well known to every intelligent planter that the study of the diseases of cocoa is still rudimentary, and that it is only within the past 15 years or so that any science has been brought to bear on these—also, that further study must be made of the remedial measures against diseases, in order that the most direct and economical methods may be adopted.

It is also, I think, admitted that "The Protection from Disease Plants Law," passed in March last, requires amendment, to make it more intelligible to the lay mind, and to limit the powers granted in it to the Director of Agriculture. In these circumstances it will be agreed, I think, that great caution is necessary before orders are made under it—and unless it can be shown, beyond question, that a plant disease is likely to, or might (as in the case of Panama disease) ruin any cultivation, a penal law should not be invoked. I do not believe that ruin is threatening the cocoa industry, and I hold that the control of the diseases of cocoa known to us, is well within the capacity of the planter. The methods of doing so are debatable, and a law which does not provide complete machinery to give effect to it, cannot afford much protection, or be of much use.

The Rev. W. T. Graham read the following letter which he had received from a prominent cocoa planter:—

"What is commonly known as Pod rot" and "Canker" on cocoa trees are no doubt, capable of transmission to other trees. But is equally true that they are due to conditions surrounding the trees, such as excessive shade, defective drainage, over-crowding, and damp, arising from bushes near by perhaps growing on a neighbour's land.

"Draconian measures, such as these suggested, will not help by themselves, since they will apparently only deal with effects not causes.

"My experiences taught me that close planting once openly advised, has given rise to much of the trouble; letting in the sunlight in moderation, provides the surest remedy.

"Apropos of cocoa. When will something be done to stop the sale and purchase of green, immature pods, by the licensed buyers? It is a crying scandal, calculated to ruin the island's reputation for turning out a decent article. Prompt confiscation of the license should follow when green pods are found at a receiving shed, no matter by whom sold; when there is no receiver, the thief must go out of business."

"Another fruitful source of trouble comes from leaving the empty pods cut by rats on the trees to get filled with rain water and provide receptacles for germs."

Sir John Pringle said there was a great deal in what Mr. Graham had read, While he (the speaker) was always in favour of introducing remedial measures for the betterment of these matters, he did not think the present time was opportune for introducing such measures. A good deal of experimenting was going on at present in the country, but he would frankly confess that there was a great deal of room for improvement. He, himself, had been experimenting with cocoa, but it had not yet come to a stage when he could give definite opinions on the results.

Mr. McGrath said he agreed with what Sir John Pringle and Messrs. Graham and Craig had said. It would appear that they were now getting to a stage where the cocoa planters were being told that they did not know their business. He thought that things should remain just as they were for the present.

Mr. Dugald Campbell said there was not a man who could say that he did not have canker of cocoa on his property, and just as measures had to be taken regarding the Panama disease, they would have to do something in this matter.

Mr. Simmonds said he agreed with a portion of what Mr. Cousins had said, but they could not introduce any drastic measure to deal with this matter at the present time. It would simply mean their adding an unworkable Law to a number of laws which were already on the Statute Book, and which were not in operation. He thought they should go slow at the present moment.

Mr. Craig said the Chinese were the persons who were now buying most of the cocoa. It had been brought to his notice that the Chinese bought the cocoa after it had been removed from the pods.

The President said he took it that it was the feeling of the meeting that no legislation was desirable.

The members: Yes.

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The following letter from the Director of Agriculture to the Secretary was also submitted:—

No. Z. 458.

2nd June, 1915.

"In reply to your letter of the 27th ulto., in which you ask on behalf of the Hon. R. P. Simmonds for information as to the list of trees in addition to Cacao that are attacked by Canker and whether the Canker prevalent on Mango, Pear and Breadfruit is the same as that on Cacao, I have pleasure in offering the following observations after consultation with the Microbiologist on the matter.

2. The most prevalent and important source of Canker in Cacao is the 'Red Canker' which the Mycologist of Trinidad first showed to be due to the fungus causing 'Pod Rot', viz.: *Phytophthora faberi* (Maubl).—

This is not known to attack any other tree in Jamaica. In Ceylon, Para Rubber and Breadfruit trees planted in Cacao cultivations have been found occasionally to be liable to the attack of this fungus, but no such cases have yet been seen by Mr. Ashby in Jamaica and it may be considered that for practical purposes Pod Rot and Red Canker are exclusively diseases of Cacao in Jamaica and are propagated on this species only.

3. With regard to the 'Brown Canker' of the bark and wood of Cacao Mr. Ashby has found the cause to be the fungus *Lasiodiplodia theobromæ*, Maubl et Griff, which also causes the "dieback" and root disease" of Cacao.

It is not likely that this identical fungus attacks Mango, Guava and Pear trees and Mr. Ashby has not seen any specimens of the attack of *Lasiodiplodia theobromæ* on these species but he has not had an opportunity of making a special study of the matter up to the present.

4. On two Estates Cacao trees have been found to be attacked by the "Bonnygate Disease" of Bananas with the production of "purple canker," the infection having passed from the Bananas to the Cacao. This disease is caused by the fungus "*Sphaerostilbe Musarum*" (Ashby.)

5. So far as knowledge of the matter at present exists it may be accepted as practically the case that the canker of Cacao is mainly a sequel to the spread of 'Pod Rot' from Cacao trees only, in the second degree to 'dieback and root disease' which is also apparently a special ailment of Cacao, and lastly to 'Bonnygate Disease' from proximity to Bananas affected with that disease.

6. Mr. Ashby will investigate the Cankers of other trees and plants in Jamaica as opportunity permits but it must be expected that these diseases are, as a rule, due to peculiar species living on their selected hosts."

(Sgd.) H. H. COUSINS,
Director of Agriculture

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FEEDING CALVES.

Jamaica is not making very much headway as a dairy country. The first essential in doing a milk and butter business is to be able to raise your calves in addition to using the milk. Those who do not use true dairy methods but only take so much milk from so many cows and let the calves take what is left, must surely realise that while they may turn over so much money in milk, they are simply taking it from their calves which often are half-starved, especially when they are young and cannot get along on good grass. Such calves when they get of an age, do eat, through the compulsion of starvation, more grass than those that get all their mother's milk; and when the cows and calves get especially good feeding, the calves

although slow to grow sometimes at first make up a good deal of lost ground afterwards by being greedy feeders. But how often do those who sell milk and still let the calves get all their food from the cow and what they graze, provide especially good feed for such milking cows and calves? It is hardly ever done. A something for nothing policy cannot pay in the long run. All calves, when a large part of the mothers milk is taken from them, should receive special hand feeding, and surely if 2 or 3 quarts of milk at 4d. or 4½d. are taken from the mother, one quart of grain at 1½d. should be afforded the calves, or when young, a meal made into a gruel food be given to them. All such calves should be trained to feed out of a bucket. In a true dairy business, however, the calf is separated from the mother entirely, and hand fed. The following article describes ways of feeding the hand reared calf. We have had sometimes two or three enquiries in one day as to how this may best be done.—

* * * * *

A good many now-a-days separate calves from their mothers and raise them by hand, feeding whole milk only and wholly for a time, or in part, with separated milk in part, or after two weeks or so, all separated milk. All sorts of substitutes for milk are tried, especially where whole milk can be sold readily, from the imported calf meals which are really good but very expensive, down to ordinary flour pap which is certainly not cheap, though good enough. We have raised a good many calves by hand but most have been fed milk in some part, with some combination of meals in part. But some, for test, have had no milk after a month, and we believe that we could feed them successfully, from a few days old, on artificial food without trouble from indigestion or scours.

Although we keep a few medicines always at hand, we seldom need them. We have not lost a calf and have medicined very few. Yet of the thousands of calves born from dairy cows in Jamaica and attempted to be reared during the past ten years, during which period interest in dairying or the milk trade has so much increased, good milking cows are not plentiful. There has been a great mortality; while many we have seen have been pot-bellied, with thin necks and large heads, with staring eyes, betraying every symptom of indigestion and anaemia, and such can *never* make first class dairy cows. Indeed we have known many calves, the progeny of imported deep milking cows, served by the best bulls, to turn out only average milkers, on good grain feeding too because they were half starved when young. Other cows not so well bred for milk have done as well on grass. Thus any failure cannot be blamed on the climate, the fault has been in the upbringing of the calves. Nothing at all can equally and entirely take the place of, fresh mothers milk to start with; we believe it gives a vitality that cannot be replaced. We do not believe in taking the calf away at birth; we should leave it with the mother to get its first suck, say for 24 hours at least, and better still three days until the calf milk or Colostrum has all gone. The calf can then be separated from the wildest cow if kept out of sight, and better still out of hearing also, of each other. Only patience is required. The calf after separation learns to feed out of a bucket very readily whenever it becomes very hungry. Its natural habit is to turn its mouth upwards and bump at the teats of its mother. Simply dip three fingers in milk and hold them to the calf's nose; it will smell the milk and suck your fingers; then lead its head

gently downwards to the bucket and let it suck the milk through your fingers. Do not let it gulp down the milk quickly. An ordinary calf requires at first at least 4 quarts in three feeds a day, that is, 1½ quarts every morning and evening and 1 quart at noon. At first the milk is always given at blood heat. If the milk gets cold between drawing from the mother and feeding to the calf, add a little hot water from the kettle. After two or three weeks when the calf begins to nibble grass or try a little dry food like bran, two feeds a day of milk are sufficient. A large calf, of breeds like the Shorthorn and Holstein, requires 5 to 6 quarts per day. This ration should be increased gradually to 6 to 8 quarts per day, according to size of calf and the youngster should be allowed to feed grass whenever it is able.

One of the best substitutes for milk, in part, to begin with is hay tea, where good hay can be had. One pound of good hay pressed down into a kerosene pan which is then filled up with water and boiled for at least one hour by which time it should be down to about 4 quarts or less—not more, then drained off through a sieve and half a teaspoonful of salt added, will replace 2 to 4 quarts of milk according to the quality of the hay and the amount of boiling down it receives. Imported Timothy and hay is a rich feed. Guinea grass hay requires double the boiling of Timothy to get the virtue out of it. This hay tea can also be mixed with milk, or better, take the place of one feed of milk at first. It is better to change off from milk gradually, taking a week to substitute any one thing completely for another. Yet with some calves the change can be made immediately, although there is risk. The composition of this hay tea is very similar to milk, as the virtue of the hay is got out by the boiling—the fibre and indigestible material being all then rejected. It is important to run this through a sieve and prevent hay seed and fibre being given to the calf. The hay need not be imported Timothy; Guinea Grass hay serves; even dried hay or wire grass will do; even fresh Guinea grass will do, but then less water is needed for the boiling, say 6 to 8 quarts only need to be added to be boiled for an hour down to 4 or 5 quarts, and here a teaspoonful of Bi-carbonate of Soda requires to be added to 4 quarts of the tea. Calves differ and if this hay tea disagrees at first, then change very gradually. The state of the bowels is the index to proper feeding.

Almost any cereal food well boiled and sieved until a thin pap is got, will also substitute milk.

Oatmeal is by far the best, followed by wheat middlings, common wheat flour, and even bran tea, but the latter needs as much boiling as in making hay tea.

In all foods, however, the calves will not have the bone and make the flesh unless the food is well balanced, nor will they have the full vitality necessary to be healthy, large, deep milking heifers if there is not enough protein and fat in the food. A Veterinary Surgeon here once raised a calf very well on green bananas chopped up, boiled soft and then the liquid drained off. The calf was sold to a dairy and gave a yield of 12 quarts of milk at 3 years. Yet the banana pap was an incomplete food dietically and scientifically. It would have been a better calf (in all probability) on a more complete milk substitute. It probably pulled along fairly well through the period when liquid food was an absolute necessity, and then made up for it on dry foods, as it got plenty of these after the first two months, we were told. Milk contains 87% of water, 3% to 6% fat 3½% protein

(or flesh formers), $4\frac{1}{2}$ Carbo Hydrates (starch and sugar) and a trifle only of waste. But the fact that a vigorous calf, even on whole milk, passes a considerable quantity of excreta shows that there is waste, that all that is in the milk is not completely digested. All the vegetable foodstuffs contain a large amount of waste, but when boiled in water and sieved, the resulting fluid contains little waste, and at any rate the calf's stomach soon accommodates itself so long as the food is of an easily digested nature.

The banana pap was very much lacking in protein and fat. All the cereal paps are lacking in fat, but this can be easily added in the shape of a teaspoonful of coconut oil made into an emulsion first. The fat and protein to balance the meals used is usually obtained in patent calf meals by adding a proportion of linseed meal—this has to be imported here and is expensive. We have found that it can be replaced satisfactorily by coconut meal, although the latter requires more cooking as it contains (in theory) more indigestible fibre. The present calf meal we are using contains at first for young calves 4 parts of banana meal and 1 part of coconut meal; later 3 parts banana meal and 1 coconut meal, and costs 2d. per lb. Calves fed on 2 lbs. of this in gruel or pap and with abundance of fresh grass they can get on common, but not Guinea Grass—gain weight on this food at the rate of over 1 lb. per day. One lb. of this mixture makes 4 quarts of artificial milk. For young calves, the meal is boiled in sufficient water into a pap, for 20 minutes, then hot water poured on it over a sieve to make up so many quarts of thin gruel.

The following comparative analyses may be of use to those readers interested in raising calves without milk:—

	Water.	Protein.	Fat.	Carbo- Hydrates.	Waste.
Milk	87.4	3.6	4.	4.6	—
Banana Meal	5.6	3.3	1.73	82.4	1.74
Coconut Meal	9.0	19.35	9.14	48.5	8.64

Coconut meal is very little if at all inferior to linseed meal and cotton seed meal, and it is cheaper; it is equal to gluten meal in every way. It has too much fibre to use without thorough cooking and sieving for very young calves. After two months they can be fed on it just as it is, along with crushed Corn or Guinea Corn as a dry food, still keeping up the liquid food. Bran and crushed oats make a better feed than Corn or Guinea Corn but the coconut meal with any of the latter makes up a good ration. It is likely that rice bran which can be got here can be used largely in a calf (or dairy cow) ration and it is cheap. But it needs careful experimental trials.

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Since this was written the calf receiving a fairly regular supply of separated milk, 6 quarts per day, but if less, calf meal added, has forged ahead of the calf receiving only the calf meal, so far as appearance goes.

It is not supposed that banana meal and coconut meal are available here as yet, as they should be. The object of the experiment was to show that a combination of what ought to be two common native products is quite as useful as any combination of imported foodstuffs for calves.

CORN CROPS.

The two chief parishes for the production of corn have always been St. Elizabeth and Manchester, followed by St. Ann. These three parishes were always known as the corn-growing parishes with St. Elizabeth as the first parish. And in St. Elizabeth, the Pedro Plains and the districts in the South-east were places where corn was grown by almost everybody, so that in the average years many thousands of bushels were available for use out of these districts, and were often sold as cheap at 1/6 to 2/-. Central St Elizabeth up to the railway, followed with a large production also. Now the first named part—Southern St. Elizabeth—hardly produces any corn; since 1907 there has been a series of years of drought and that part has not even been able to supply itself with corn. Central and North Central St. Elizabeth have usually had a large production, but Manchester became the chief corn parish.

Of late years other parishes have been growing more and more corn, and we think that without being accused of any self gratification, this has been due to the operations of the Agricultural Society; the JOURNAL and its continual articles on the subject, making good seed corn available to everyone, the Agricultural Instructors constantly advocating the growing of corn by better methods, and the Branch Societies discussing the subject. It has always to be borne in mind that in estimating the crop of corn a great allowance has to be made for the amount consumed at home from the milk stage on, before the corn is reaped at all, and after that each grower keeps a certain amount of corn for use in the home and for his stock. It is therefore difficult to estimate what may be available for sale.

Owing to severe drought in Central St. Elizabeth on to the South-east of that parish, there is a large reduction this year in that parish. The crops available for market are estimated at only 10,000 bushels, instead of as in the last two years 40,000. On the other hand, Manchester's estimate is about 40,000 bushels, Clarendon 15,000, as there have been good seasons in this parish and larger crops than have been known for 10 years have been grown in the lowlands. We think this under-estimated. St. Catherine has not so much as last year and the estimate is only 5,000 bushels. We think this also much underestimated. St. Ann has not yet come back to its old production and the estimate is only for 20,000 bushels. Westmoreland's estimate is only for 3,000 and yet it has grown more corn these past few years than before. It has long headway to make up before it can be called a corn growing parish. Trelawny's production is said to be about 5,000 bushels altogether which is not bad. St. Mary will have about 5,000 bushels; some large proprietors there are now growing their own. The other parishes do not count for much but St. Andrew is growing more and more corn now.

The total corn crops which may change hands, that is, is sold from growers to consumers (quite a different thing from the total crop reaped) should be about 100,000 bushels. We think these figures are all much underestimated this year.

We import from 240,000 to 250,000 bushels of corn a year costing us from £44,000 to £52,000 a year. There is therefore plenty of room for the expansion of corn growing to cut into this £50,000 worth. And after that we have still to start out to grow enough of a high class grain to make our own cornmeal of which we import from 45,000 to 90,000 barrels at a cost of £35,000 to £78,000.

KEEPING CORN.

We have often given our opinions and experiences in preserving corn and other grain from attacks of insects by the use of Naphthalene. We now give as the result of practical tests carried through in Queensland in 1914:

"A comparison of all the results recorded above shows that storing with naphthalene is practically as effective as fumigation with carbon bisulphide, that is had no bad effect on the grain from the point of view of its suitability as food for cattle, and also does not alter the germinative capacity to any appreciable extent. It is therefore a much more suitable compound to use for preserving grain than Carbon bisulphide, its advantages over that insecticide being:—

1. It is quite easy to use. Carbon bisulphide is an extremely volatile liquid, and the vapour when mixed with air forms a very explosive gas. This necessitates extremely careful use, as in inexperienced hands it may prove dangerous.

2. No special apparatus is required, the only precaution necessary is that the naphthalene should be enclosed in a muslin or some such porous material to prevent it becoming mixed up with the grain. With carbon bisulphide a special fumigating house is essential, and this is costly to build.

3. The effect is continuous, as the naphthalene is stored along with the grain. The effect of fumigating with carbon bisulphide is to kill all the insects, larvae, and eggs in the grain at the time, but after fumigating the carbon bisulphide must be allowed to evaporate and any insects which found access to the grain could breed unchecked. The effect of the naphthalene is constantly to keep the insects in check.

The use of naphthalene, then, is a simple way in which grain kept for fodder and for other purposes may be preserved from damage by insects, the only things to be remembered being that the naphthalene should be prevented from becoming mixed with the grain, by enclosing it in muslin, and that the grain should be exposed in the sun for from six to twelve hours before feeding to the cattle.—*Queensland Agricultural Journal*.

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GUINEA CORN.

From the middle of August to the middle of September is a good time to plant either the White or Red Guinea Corn, the earlier the better, given sufficient rain to start growth. The White Guinea Corn is by far the most prolific, but as it only heads about January no matter when planted during the preceding year, the Red variety which matures in four months comes in handy during the year. Not only is the White Guinea Corn the most prolific in grain, but it gives a larger amount of herbage than the red, grows more vigorously, that more green feeding is available from it. At the Hope Stock Farm this Guinea Corn is largely grown, is cut and stored in a *Silo*, so that later on during the year this green juicy stuff is available for feeding cows and is of course especially useful during a spell of dry weather when grass may be dry or scarce. But Silos are not available to others who may yet find themselves in the position of having a glut of green feed in December and January from their Guinea Corn, yet may be fairly certain—from previous experience—that later on they will be a scarcity of forage through dry weather.

In old times when Guinea Corn was largely grown in Vere and in Northern St. James, we are told, planters used to store the dried stalks and leaves, as hay, and this is commonly done wherever Sorghums are grown. The stalks were cut when heading, spread as it was cut, dried a day, then put in small heaps which were turned over every day dried a day in the hot sun, then put in small heaps which we turned over every day until the whole was dry and smelled like hay. Then these heaps were piled into small stacks, and lastly carted away to the yard and built into large stacks which were then thatched over to keep them dry. This Guinea Corn Hay makes a good standby in times of scarcity of grass in the fields. To make it more palatable when fed at first, some molasses may be sprinkled over it.

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What we call Guinea Corn belongs to the family of Sorghums, and there hundreds of different varieties grown throughout the tropical sub-tropical and warm temperate parts of the world, whenever there are dry conditions of climate. From its name, no doubt our Guinea Corn came originally from West Africa. In South Africa there are Red and White varieties of Kaffir Corn. In East Africa varieties with a plumper grain, very quick to grow, known as Dhurra. What we call Red Guinea Corn here is Dhurra.

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SELECTION OF CORN.

When the corn crop comes in and the cobs are beginning to dry on the stalks, then is the time to go through the field and select our seed. In fact any man who takes interest in his corn and its improvement to suit his own circumstances, should go through his field pretty often and mark the best stalks, and the best cobs on these stalks, to be kept for seed. It is not always, however, the biggest stalks that yield the best cobs. Our corn is so mixed through so many different varieties having been brought in from the United States and mixed with our native red corn, that in the field many different types are to be seen. Those who depend upon corn stalks to some extent for feeding beasts, will probably think that a large growing plant suits them best; but those who only grow corn for grain, and who are in any way troubled with breeze laying their corn low, should select the short stout type of corn, with the cob borne low on the stalk. We mentioned in a previous JOURNAL that we once had such a corn—the stalk did not grow tall, nor thick, but there was a good cob, sometimes two, borne from 1ft. to 2ft. from the ground, and this kind of corn could be planted close in the row so that its production per acre was fairly high. We have hopes that we can again select this type, but of course it takes a good many seasons of selection to make the type come true.

The stalks selected for seed should be left until they are thoroughly dried, then the cobs should be picked, the husks folded back, and the corn hung up in a cool airy place to keep, and these cobs need not be shelled until the next planting season. One thing is necessary for all seed cobs, and that is, to see that there is as little pith as possible. The cobs may be very large to look at, but the proportion of grain to pith or cob, is a good test; and all the cobs selected should be filled up to the top.

PLANTING OF CORN.

In the planting of corn for the fall crop, there are different methods of preparing the land. Some of the larger planters are able to plough and with the use of horse implements they bring the cost of cultivation down to a very low point. We have heard of some planters who are growing corn on a rather large scale at 10d. per bushel from planting until the grain is ready for market, and 1/6 per bushel is not uncommon. The bulk of the smaller corn growers must, however, use hand implements. Some fork the land right through, some only fork holes, but still the majority adhere to making chop holes with a hoe, 4x3, apart planting 5 or 6 grains to the hole. If good seasons prevail, and the soil is good loam like the red soils, the chop hole method does fairly well; but on clayey soils, or where good seasons do not prevail, the slightest dry weather, say 10 dry days in succession, dries out the corn. We have also heard of poor results from corn planted on forked soil, and we generally found on investigation that this was because when planting the soil was not firmed. We have often explained that there is a great difference between making the soil soft and fine, and having a firm seed bed. If the seeds are dropped into loose soil, the dry air can penetrate and dry out the soil, whereas what is wanted is for the soft, fine, moist soil to be pressed closely against the seed so that the corn grain quickly germinates, and when the fine rootlets start out they are in close contact with the soil which provides their food material, yet they have not to lose time and strength trying to bore through hard clods. When the seed is planted therefore, the soil should be firmed down, and after planting, the earth on the top of the seed should be firmed. In countries where horse implements are constantly in use and wheat, corn barley and oats, are grown on a large scale, the fields are rolled with a heavy roller to firm the soil. If with hand labour this is usually done here by the foot or by the hoe.

Owing to there being so many enemies to corn and Guinea Corn in the way of ants, mice, rats, sometimes birds, and it is stated also frogs, it is necessary to treat the seed before planting, and we know of nothing simpler or easier for the ordinary man, than passing the seed through a paste made of kerosine and wood-ashes. The seed does not need to remain in this paste any time—simply shaken through in order to be coated with the mixture. This practice, however, only preserves the seed until it has germinated and the young plant has shot above the soil; it does not preserve the young shoots from the attacks of cut worms. These cut worms are a kind of small caterpillar which during the day lurk in the soil or in rubbish, crawl out at night, and slice the young plants right through. The plants can be dusted with Slug Shot but this preparation is more meant for use in gardens, and a cheaper preparation would require to be used in fields of corn.

Baits made of cornmeal and Paris Green can be laid through the field and if placed in bamboo pots or old tins, birds will not get at the baits. It is likely that some of the proprietary soil disinfectants such as we mention in this JOURNAL will kill these pests if applied round the young plants, but we are afraid the application of such would be too expensive.

Later on, caterpillars attack the corn and these have to be fought. Paris Green diluted with 20 parts of lime can be dusted on, but we have a higher opinion of Arsenate of Lead which sticks better; it has yet to be proved by experiment whether the powder form of Arsenate of Lead dusted on, or the paste form mixed with water and sprayed on with a small hand spray pump, would be the most economical and effective.

It has often been advised to plant only 3 seeds a hole and these not close together dropped carelessly, but placed in the form of a triangle, with as much space between as the hole will admit. But now-a-days with so many pests, causing loss of young plants, and so much re-planting to be done—when the later plants hardly ever do well as those that got the start—we prefer to plant 5 grains per hole and go to the trouble of taking out the weakest if they all happen to grow.

—:O:—

SELECTION OF COCONUTS FOR PLANTING.

A good many owners of estates who planted coconuts in the past, planted any kind of nut from any kind of tree as was convenient, and gave very little attention in the way of cleaning and cultivating. Of late years there has been some selection of seed, and every year sees a fuller realization of the very great importance of choosing seed nuts of good size, from the most productive trees; productive, not because they are standing in especially rich soil or where they receive doses of manure, but because they are outstanding trees amongst others growing under the same conditions. There are also usually districts or localities where trees appear to bear nuts that make better seed than in other localities, and the young trees grow with more force or vitality. We have noticed this for years.

There was an interesting article in the Kew Bulletin No. 2 of 1915 (part of which was reproduced in the Agricultural News (Barbadoes) of May 8th.) This article was written by Mr. Crum Ewing of Glasgow, who owns Caymanas Estate here (about 500 acres sugar, 600 acres bananas) and also Estates in the Island of Nevis and in Demerara. In throwing up the Sugar Estates in Nevis in 1907, Mr. Crum-Ewing asked us to procure the best seed coconuts we could get for him to plant on the old cane lands in that Island. We took a good deal of trouble in getting the nuts and in inseminating them. There was very little loss of nuts on their arrival at Nevis. This is what Mr. Crum-Ewing says:—

The number of nuts planted up to the end of 1911 amounted to 10,805. The trees are planted 28 feet apart, or fifty-two to the acre. Certain trees commenced to bear in 1911, and Mr. Crum Ewing saw one early in 1912, four years four months old, bearing forty nuts. Reaping in any quantity, however, did not commence till 1913, when the 1907 plants would be about five years three months old.

From January 11, 1913, to June 30, 1914, the number of nuts harvested amounted to 23,807. From January 11 to October 23, a 4-inch gauge was used which resulted in 77.4 per cent. of selects and 22.6 per cent. of culls. Both selects and culls were sent to New York, where the market took both grades as select, paying \$42.50 for 1,000, about the highest price which has been paid for any coco-nuts in that city. Since October 23 a 3 7/8-inch gauge has been used (which is 1-8-inch larger than the Malay regulation gauge of 3 3/4-inch), and of the 75,116 nuts gathered, 68,419, or 91.08 per cent. have been select, and 6,697 or 8.92 per cent. have been culls. A selection is made in the field of the nuts while in the husk, and it is found that 95 per cent. to 98 per cent. of these nuts when husked are over the 37-8 gauge. . . .

Out of 1,000 seed nuts sent to Demerara in July 1913, it was reported on February 28, 1913, that 89 per cent. of these had germinated, that the others seemed quite good, and that more were expected to grow. In March 1913, fifty nuts were planted standing up and fifty on their sides by way of experiment in Nevis. On October 24, 1913, it was reported that out of the fifty on their sides forty-six, or 92 per cent. had germinated, and of those standing up only thirty or 60 per cent. had germinated.

The high percentage of good-sized nuts on the young plantations at Nevis is of both general and commercial interest, and affords ample justification for the great trouble which was taken in selecting the original seed nuts in Jamaica and elsewhere. As to the selection of the seed, Mr. Crum-Ewing writes: 'I do not understand Simmonds's advice to take seed nuts from clusters containing few fruits—on a profligate tree there should be no such clusters. I quite agree with you that seed nuts should be taken from trees whose good character is well marked. It appears to me that the pedigree of a coco-nut tree is of the utmost importance. Even if I had one or two years' experience of a tree, and it showed the same characteristics, for which its parent, and yet again its grand-parent had been selected, I would rather use the seed from that tree than take Simmonds's advice to choose one picked from a sparsely furnished cluster grown on a tree passed the middle age, of whose parentage there was no record.'

The nuts which are now being planted on Mr. Crum-Ewing's land in Nevis and in Demerara are taken from the young trees planted in Nevis in 1907. As already mentioned, the germination percentage of the nuts sent from Nevis to Demerara in July 1913 was 89 per cent., which certainly refutes the statement made by Simmonds that nuts from young tree 'rot away at the eye.' Mr. Crum-Ewing informs us that he is planting nothing but his own Nevis seed both in the island and in Demerara, and adds: 'I feel justified in so doing, knowing the great care with which the seed is selected, the minute observation to which the individual trees have been subjected, the absence of disease in the grove and in the island, and the good stock from which the parents and grand-parents were derived.'

These experimental plantings should, in the course of a few years, enable a proper estimation to be made of Simmonds's statements, but in the light of the practical experience already gained, it seems highly unlikely that his recommendations will receive support.

* * * * *

Mr. Crum-Ewing's reference to Simmonds, refers to the statements in Simmonds' *Tropical Agriculture*, as follows:—

"The nuts for sprouting should be chosen from those fully ripe, having full, large eyes, and such as have been gathered from trees past the middle age—not, however, from aged ones—and from clusters containing few fruits. . . . Those nuts which may be taken from trees of immature age, will, if planted, rot away at the eye; and the plants, if any be successfully reared, on transplanting will grow very rapidly and acquire bulk, but the fruit will drop before the kernel acquires consistency, the root stalks break, and the trees entirely fail before mid-age.

Efforts have been made to discover what truth there may be in the above statement, for neither direct confirmation nor absolute refutation has been obtained. On physiological grounds there would appear to be no justification for the statement as it stands, though no doubt it would be unwise for more than one reason to plant nuts from young trees in the first year or two of their coming into bearing."

* * * * *

We do not think that there is anything in the statement that nuts from young trees rot away; they grow very well, but our aim would be to select nuts from mature trees if possible.

A USE OF SEA ISLAND COTTON.—Sea Island cotton finds an important use in the manufacture of motor tyres. The *Times* contains a striking advertisement notifying the fact that the Goodrich Co., Ltd., entirely uses Sea Island cotton as the fabric for the foundation of their tyres. It is stated: 'there is as much difference between the value of the best cotton and the worst as there is between cotton and silk. The very finest cotton is the true Sea Island variety. Its quality in length and fineness of staple is extraordinary.' The above advertisement is one of the first that has been noticed in regard to the virtues of Sea Island cotton. The best Sea Island cotton in the world is produced in the Island of St. Vincent in the West Indies.

COWPEAS.

A correspondent wrote the other day: "I now understand that allowing the peas to ripen and picking them does not interfere with the nutritive powers of the peas as a green dressing. In your JOURNAL you have always advocated the cutting down of peas when flowering, to be turned into the soil; but if we can grow the peas and get same as food without interfering with it as a green dressing, you can quite see the benefit.

I shall be glad to hear from you if this is correct."—C. H. L.
Morant Bay.

* * * * *

It surely is obvious that taking away the mature Cowpeas, which are the quintessence of the plant, to the extent of 10 to 15 bushels per acre, weighing 60 lbs. to the bushel, and which are rich in nitrogen, must take a large proportion of the nitrogen from the soil that the Cowpeas were purposely grown to add. If on the other hand the Cowpeas are cut down when in blossom, or just setting pods, just when the whole powers of the plant are concentrated on making seed, then all the nitrogen which is the most valuable element would be added to the soil. The Cowpea in common with other legumes has the power of absorbing nitrogen from the air; it does not add potash or phosphoric acid to the soil, except that legumes are as a rule vigorous growers and deep-rooted and may utilize stores of potash and phosphorus which more superficially rooted plants would not get at—and thus legumes make these plant foods available, for crops, say bananas.

The planter must calculate whether adding so much nitrogen to the soil for the benefit of his bananas, or selling his Cowpeas, will pay him best. He does get some benefit in additional humus added to the soil from the dry vines and roots of the Cowpeas together with a modicum of additional nitrogen no doubt but all the Cowpeas sold off the land represent so much available fertility lost to his bananas or cocoa or other staple crop.

It has been estimated in the United States that one average acre of Cowpeas contains 65 lbs. of nitrogen, 111 lbs. of potash and 20 lbs. of phosphoric acid; of this the roots and stubble contains 8 lbs. of nitrogen, 18 lbs. of potash and 13 lbs. of phosphoric acid. A fair crop of 12 bushels of dry peas weighs 720 lbs. and of this 18 per cent. or 40 lbs. is nitrogen. You get therefore 8 lbs. of nitrogen in the roots and stubble left, and 17 lbs. in vines and you lose 40 lbs. in the peas taken off. You also, however, lose potash and phosphoric acid taken off in the peas: viz., 93 lbs. of potash, 7 lbs. of phosphoric acid, according to these figures. Adding a fertilizer especially made up for Cowpeas, to the soil when planting the Cowpeas would enable a crop of peas to be taken off and still benefit the bananas.

A fertilizer for Cowpeas, as laid down in a treatise of the United States Department of Agriculture, should contain about the following proportions:—8 per cent. available phosphoric acid; 6 per cent. actual potash, applied at the rate of 400 to 500 lbs. per acre. Nitrogen is not needed for this crop, unless the soil is so very poor that the peas start off with a very weakly and sickly looking growth. This condition would require about 75 lbs. of nitrate of soda added to the soil per acre.

OVERLOOK BEANS.

Of late years, this bean (botanically *Canavalia Ensiformis*) and called also here Cut Eye Bean; and elsewhere Sword Bean, Jack Bean, Jamaica Horse Bean, etc.) has come into common use as a cover crop and green dressing for bananas, and in the parish of St. Mary is probably now grown as commonly as Cowpeas. But when other local food crops are scarce, the heavy growth of Cow peas can be allowed to bear instead of being turned in as a green dressing and a large amount of foodstuff be made available; the Overlook Bean however at present is not used at all for food, either for man or beast. It is a pity because the plant is a powerful grower suitable for the heaviest clay soils, standing continuous wet weather and long dry weather alike, and is most prolific. Very large crops of beans are available or could be made available at a cheaper price per bushel than any other legume and if it were found on trial that they are suitable for feeding horses and mules, they would be an economical addition to a diet of grass and corn for these animals.

Sloane, the great botanist, considered this bean indigenous to Jamaica, but it is also known in West Africa.

It is generally thought here that these beans are poisonous, but that is not the case. The beans can be eaten by human as well as animals, and old people who have called in this office have told us that they have often cooked and eaten them. In this JOURNAL for September 1913 Mr. Arch. Spooner wrote an experience of this bean in Antigua.

Although we usually try most products experimentally we have not had any horse, stock or poultry that we wanted to experiment on. It does seem strange that we have to go to other countries to get information on the edible qualities of this bean, which is so common in Jamaica.

In the *Agricultural Gazette* of New South Wales the following appears:—

"The result of this last crop was reported on by Professor Tracey, as follows:—
"The 'Jack Beans' yielded 30 to 40 bushels per acre. We have used the beans this winter in feeding steers, cows and hogs, and I am greatly surprised to find them of almost no value. Cattle soon learn to eat the meal made from the beans, but it appears to be very difficult of digestion. We have used it constantly for ten weeks until yesterday, when I decided that there was no occasion for any further work. Next week I shall commence feeding the cooked meal, and if I get satisfactory results from that, shall try cooking some of the beans also."

In a report on feeding experiments in the Southern States it is stated:—

"While grown to some extent in the Southern States, the plant does not appear to thrive as well there as here, and no extensive feeding experiments are reported.

The bean-meal is said not to be very palatable or digestible for cattle, but this may be due to a too limited experience in its use.

The early feeding experiments with the green fodder in Hawaii gave similar results to those reported above, but as feeders gained in experience the fodder was found to be both palatable and nutritious for dairy cows as well as swine.

As with most new feeds it is important to use in the beginning only a small proportion of the new feed in the accustomed ration, and then increase the proportion gradually. The Dowsett and Pond Dairies have fed green 'Jack Beans' and sorghum in equal proportion to dairy cows with excellent results.

The crop requires about a month longer to mature than do cowpeas, but the yield is proportionally greater. Yields of 16 to over 20 tons of green fodder per acre have been reported from various sources.

The best yield of seed reported is 1,020 lbs. per acre."

There is a tremendous waste going on in Jamaica, the greatest being that of the material gained from the soil. We ship away every year between twenty and thirty million coconuts, from ten to sixteen million bunches of Bananas, forty-five to seventy hundredweight of Cocoa, from sixty to ninety hundredweight of Coffee, about twenty-five hundredweight of Ginger, from two hundred to four hundredweight of Sugar, hides over five hundred thousand pounds weight, and goat skins over one hundred and fifty thousand pounds weight.

These are the exports which chiefly cause loss of fertility. There is not so much loss from the pimento, logwood and other dyewoods exported. The most wasteful loss of all is not from our exports, however, but from the blood and bones of the cattle, pigs and sheep slaughtered at the various slaughter-houses, but chiefly in Kingston, where 10,440 of these animals are slaughtered every year. Imagine the loss from the blood of these animals and the contents of their stomachs, which, we understand, are thrown into the sea to pollute the water and encourage sharks. The average weight of a cow or steer slaughtered is about 500 lbs., and the blood and bones represent 60% of the total weight. While there is a great loss in our not having manufactories, chiefly connected with Agriculture, established here, such as Coconut Oil mills to express the oil from the small nuts, to be used instead of Cotton Seed Oil, and for making soap, the residue of the Coconut to be used for feeding stock; and in all the hides of cattle slaughtered not being manufactured into leather here, the loss of blood and bones is local, and is a loss which would not be difficult to stop. Dried blood and bone meal are rich and costly fertilizers.

Bones contain about 3 per cent. of nitrogen and 25 per cent. of phosphoric acid and requires to be ground into a fine powder to be of full use as a fertilizer. It requires, however, very powerful machinery to crush some kinds of bones, such as the shanks, skulls and shoulders. Fertilizer manufacturers use sulphuric acid for reducing the bones but this is a highly dangerous acid only to be used in a properly fitted up place and by a properly qualified person to handle it. But there would be none here for a small company to handle such kinds of utter waste and make something out of them.

Another waste is the corn cobs when the grain is shelled out. These are usually thrown away. If the whole cob is ground up into a meal, grain and cob together, the combination forms a good food for working mules, and forms part of the ration of dairy cows. There are special mills to grind the whole cob.

:o:
COFFEE.

While we are doing a great deal for the extension of cocoa-growing through the Department of Agriculture having established Nurseries in different parts of the Island, the plants being raised from selected pods taken from selected trees on selected plantations, the young plants being sent out under the auspices of our Agricultural Instructors who are thus enabled to impress the importance of careful planting and careful attention on growers, we are not doing the same thing for coffee. Of course coffee plants are so hardy that they grow under the parent trees readily, and so some kinds of plants are available, whereas young cocoa plants do not grow under the old cocoa trees

except in rare places. Then again a good many experiments have been carried through in manuring cocoa in Trinidad and Dominica, and we have the advantage of the results of these if we desire to apply the same practices for experiments here, but little knowledge is available of the results of using fertilizers on coffee; indeed little knowledge of any experiments with coffee is available.

The planting of coffee here is even yet generally done in the crudest way possible, long spindly suckers are wrenched up from some thicket of coffee trees, carried by hand or on donkey-back, the roots exposed to the sun, then they are stuck in small holes, without any cutting back, or any trimming whatever. It takes a hardy plant to stand this treatment and grow: young cocoa plants cannot be treated so roughly or they would not grow. If seasons are favourable they young coffee plants grow but take a long time to make a good start and they seldom form shapely trees. If good coffee nurseries could be established in coffee districts, the young trees carefully grown from the best seed and distributed with care, so that the roots do not get dried out, then lessons given in careful planting at suitable distances apart, our coffee industry might be extended very largely with a few years, as much planting might be induced on lands settled only of late years.

It is common now to see good cross trenches on the hillsides where cocoa is grown, but it is the rarest thing to see any such trenches or drains across the steep hillsides where coffee is grown, even on the stiffer soils. The necessity for the one is as much as for the other, indeed more, as coffee is grown on steeper hills in cooler altitudes. It is not yet realized that cross trenches are useful even on light lands not so much to drain the land as to prevent wash.

Cocoa is now being really cultivated, not simply left to grow: it is pruned, trenches (or drains) put through; the soil between the trees forked, usually pricked forked, not to tear up the roots; in the drier parts it is often mulched with cut grass, banana trash and other waste vegetable material; it is planted through with legumes, chiefly Cowpeas and Overlook Beans for green dressings, that is to add humus to the soil, as much animal manure cannot be got. Little of such trouble is spent on coffee, usually only rough pruning, if any, and weeding. Even in Costa Rica where the soils are much richer than here and where the coffee trees grow very luxuriantly, green dressings are now being applied. We have shipped Cowpeas, Overlook Beans and Jerusalem peas to Coffee growers there to try.

It is a certainty that what applies to other economic trees applies to coffee, if good crops are to be secured, (1) each tree must have "elbow room", not be crowded; (2) must be pruned, to leave only the best bearing branches; (3) the soil must be opened up at least one yearly by forking; (4) on stiff soils and all steep hillsides cross trenches must be put through, and (5) manure in some form must be added, preferably animal manure if enough can be saved, and if not, cut grass, bush, or when the plants are young and the rows between fairly open, Cowpeas can be grown. Cowpeas, etc., will not grow in the heavy dense shade of thick coffee.

We have always exported more value in coffee than in cocoa and our upland districts have always largely depended upon coffee for their living. Now-a-days with the banana trade extending its operations even to mountain parts, there is a fine opportunity to

plant more coffee where bananas are being grown over 2,000 feet. But the first thing to be careful about is to select sturdy young coffee plants.

In 1913 we exported of coffee value £158,578 and of cocoa £114,738. In 1914 the relative values were coffee, £166,140; cocoa £153,033.

We have always insisted through this JOURNAL and by correspondence, that bananas should not be depended upon as a crop, that is the only crop or means of living, but the opportunity of the trade in bananas be taken to use these plants as a cover crop for growing cocoa in the lowlands and coffee in the uplands.

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LOCAL INDUSTRIES.

We certainly need industries here other than agriculture but closely connected with it; otherwise there will continue to be great waste and great loss. Unless we can utilize some of our products locally of which there are useful and necessary bye products, we shall continue to sell some of our staple products cheap, and buy back some bye-products of these or other similar articles used for the same purpose, dear.

For instance we exported Coconuts in 1915 value £123,049. We import of Cotton seed oil for cooking purposes £22,318; we also import cotton seed meal for feeding cows and as a fertilizer, and could probably make use of a great deal more of it, if it were cheaper. We ourselves import and use Coconut Meal for helping to feed calves. If this was available, large quantities would be used for feeding horses, cows and pigs chiefly. Is it not plain the great loss we suffer from not having oil mills to express the oil from our coconuts to be used locally for cooking, and perhaps for making soap, and have the coconut meal available for our stock. *But*, and this would be the greatest advantage, in our opinion, we would gain all the manurial value of the coconuts by having the coconut meal used here. Last year 29 million coconuts were sent away representing a tremendous loss to our soils.

We export hides to the value of £23,000, goat skins to the value of £14,336; and then we import leather to the value of £13,000, and boots and shoes to the value of £81,219. All hides and skins could be made into leather here, and at least the coarser type of boots and shoes made here. At present both leather and boots of good quality are made here to a very small extent only. With a proper apprentice system thousands of pounds worth of leather and boots could be made employing hundreds of efficiently trained men and women. We only mention these products: there are others. Would it be possible to organize industries here? We know that attempts have been made before and ended in failure. We have been writing on the same subject for 15 years ourselves. But they ought to be Island projects, not little try-to-get-quick-rich schemes which usually turn out badly.

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TO KILL WEEDS IN THE WALKS.—Various Chemicals act effectively on rough leaved weeds but have little effect on pure grasses especially on nut grass. A strong solution of sulphate of copper, half a pound to a gallon of water sprayed on the walks will kill weeds. So will dilute sulphuric acid, but it must be used with caution. So will a solution of Arsenic. Some of those who spray cattle with an arsenical spray, find that the grass where the cattle stand gets killed out by the drip. Nut grass is hard to kill as the grass grows from a little bulk deep down in the soil. It takes repeated applications to kill this grass.

SEA ISLAND COTTON:

Although the market for all cotton became very depressed immediately on the outbreak of the War, and it was expected that cotton would hardly sell at all, still prices turned out not so bad as we expected for Sea Island Cotton, and all of what was sent from Jamaica sold at a fair price, over 1/- per lb., perhaps 3d. or so lower than previous prices. There was no planting last August and this year no one has made preparations to plant, while because of the high and certain price of sugar and the magnificent seasons the districts have been blest with, everyone in the districts where cotton was most largely grown, has been putting in cane as much as possible, and cannot "bother" with cotton.

However, prospects for Sea Island Cotton are good.

The following circular has been addressed to the Hon. Francis Watts by the British Cotton Growing Association, a copy of which we have received.

DEAR DR. WATTS,

In reply to your letter, I am writing fully to explain exactly how the guarantee from the Fine Spinners' Association is to be worked.

1.—The guarantee applies to all good, clean, merchantable cotton grown in the British West Indies in the season 1915/16—i.e., sown in 1915 and shipped prior to, say, June 30th, 1916.

2.—The Fine Spinners' Association will purchase, on arrival in Liverpool, all such cotton. Payment to be made in cash. This secures immediate sales.

3.—The prices will be fixed on the following basis:—

St. Kitts, best quality	..	18d.
St. Vincent, best quality	..	18d.
Other Islands, best quality	..	14d.

St. Vincent superfine will be sold on a separate basis, and, of course, at higher prices.

4.—Standard types have been selected for each Island, and the above prices will be paid for all cotton equal in quality to the types. All good, clean, merchantable cotton will be accepted even if inferior to the type sample, but with a corresponding difference in price—i.e., a lower price will be paid for inferior cotton. Mr. Wolstenholme will act for the British Cotton Growing Association and for the planters and shippers in arranging these differences, and, in case of any dispute, the matter would be referred to the Liverpool Cotton Association.

5.—Stained or dirty cotton will not be accepted under this guarantee, but will be sold separately on its own merits.

6.—Any planter or shipper wishing to take advantage of this guarantee must undertake to ship the whole of his 1915/16 crop to the British Cotton Growing Association, and such undertaking must be delivered to the British Cotton Growing Association *not later than August 31st, 1915*. The terms of this guarantee will not apply to cotton forwarded by planters or shippers who have not given the above undertaking.

I think the above should make matters perfectly clear, but if there is any doubtful point please let me know and I will have it straightened up, for I can assure you Mr. Dixon is really anxious to help, and only wants to do what is right and fair, and he assured us that if any appreciable advance should take place in the general Sea Island market, owing to the early termination of the war, the Fine Spinners' Association would take this into favourable consideration.

I should also make it clear that it is a purely voluntary agreement. It is quite open to any planter to come in or not, but it must be all or nothing. It would not be fair to the Fine Spinners' Association for planters to wait and see how the market is going, and if the market drops to pile the cotton on to them, and if it goes up to sell their cotton elsewhere. The Fine Cotton Spinners are offering a very fair price as things are, and are quite prepared to run the risk of the market, but it must be clearly understood that each planter who wishes to take advantage of the offer, which insures prompt sales for cash at fair prices, must give an undertaking not later than August 31st next. If any planter likes to chance it, and run the risk of the market in the hope of higher prices, he has no need to sign any undertaking, but we cannot hold out any great hopes of prompt sales for cotton shipped outside the agreement.

I enclose copy of the undertaking which we should require signing, and I should be much obliged if you would telegraph us on receipt of this to say if everything is quite clear and in order. If so, I propose to send a copy of this letter to each planter and shipper, together with an undertaking, which is to be signed and returned to us by all who wish to take advantage of the Fine Cotton Spinners' guarantee.

Yours faithfully,

J. ARTHUR HUTTON,
Chairman.

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COST OF PRUNING COCOA.

The constant question asked me is: "What should be the cost of pruning Cocoa." I have figures to hand that Cocoa can be pruned not surgically treated or treated with simple sanitary measures, very efficiently at a cost of 12/6 per acre per annum which is exactly one penny per tree per annum or about the value of three pods per tree per annum. This should prove the economy of intelligent labour when bestowed on Cocoa plantations from their youth up.

W. CRADWICK.

Agricultural Instructor.

Highgate P.O.

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COCOA COMPETITION.

RULES OF THE ST. MARY COCOA CULTIVATION COMPETITION, 1916.

Prizes given by the St. Mary Exhibition Fund Committee, Hon. R. P. Simmonds, J. A. Benjamin, Esq., A. D. Goffe, Esq.

(1) Open to Small Proprietors Members of Branch Societies of the Jamaica Agricultural Society only. A Small Proprietor for the purpose of this Competition, is a Proprietor owning not more than 20 acres of land.

(2) All Competitors to pay 1/- entry fee. Entry fees to be paid to W. Cradwick, Agricultural Instructor, Highgate P/O., not later than December 31, 1915.

(3) The judging will commence in March, 1916.

(4) The cultivations entered in the Competition must consist of at least one acre, one acre for the purpose of this Competition shall consist of at least 300 trees.

(5) The cultivation may be a mixed one. Cocoa, Coffee, fruit trees, etc., may be grown on the same land, so long as it contains not less than 300 Cocoa trees.

(6) No Cultivation to be more than $\frac{1}{2}$ a mile from Parochial Road.

(7) The judging shall be conducted on a system of points as follows:—

Forking and weeding	20	points
Draining	20	"
Pruning	20	"
Disease eradication and preventive measures	20	"
Insect eradication and preventive measures	20	"
Picking and disposal of pods	20	"
Appliances for curing	20	"
Manuring and mulching	20	"
Regulation of shade both temporary and permanent	20	"
Books, records of Cultivation including revenue and expenditure	20	"
Tools including pruning tools	20	"

The Prizes will be as follows:—

1st Prize 1 value	..	..	£6	0	0
2nd Prizes 2 value each	..	..	4	0	0
3rd Prizes 3 value each	..	..	2	0	0
4th Prizes 4 value each	..	..	1	0	0
5th Prizes 6 value each	..	..	10	0	0
6th Prizes 12 value each	..	..	5	0	0
Total Prize money			£30	0	0

PIGS.

(Being a few remarks on the Pig by J. A. Ogilvie at a meeting of the Porus Agricultural Society on June 7th, 1915.)

In hazarding a few general remarks on the pig, you must disabuse your minds of any idea that I claim to be an authority on the subject. I can only give you the results of little experiments which I have tried from time to time. It may not be out of place to say that the professional books which we get here are written to suit American and English climates, conditions, and soils which are entirely different from ours, and consequently I would advise you not to place too much reliance on such books. Until some local authority favours us with a practical volume on the subject, we must continue to learn by personal experience, and after all no knowledge is so convincing.

(1). Most of the small settlers own such a limited quantity of land that they are forced to keep their pig-styes in rather too close proximity to their houses, and the unpleasant odour arising therefrom becomes very disagreeable and obnoxious. This odour can be easily overcome by using Permanganate of Potash, a pinch to a quart of water, and sprinkling all round the sty every morning. The Permanganate forms harmless compounds with foul-smelling gases and liquids, and it also acts as a disinfectant by destroying the germs of diseases. It can be bought very cheaply at any druggists.

(2). Old-fashioned people have an idea that the best way to fatten a pig is to give it large quantities of salt which will cause it to imbibe prodigious amounts of water. This is a mistake and has nothing to recommend it. In the first place, water does not form fat cells and in the second, the excess of salt causes the animal to over-drink and this throws too much work on the kidneys, and in the pig the kidneys are rather susceptible to disease. You must not think that I mean to imply that the pig does not require salt—he does, and a tablespoonful or so should be sprinkled over his food once or twice a week at least, whilst young growing pigs should get an allowance of salt four or five times a week. Always remember that corn-tops, potato slips, and such green foods are almost valueless unless salt be given with them.

(3) No matter what kind of feeding you are using, if you wish the pig to accumulate fat quickly you must give oil in some form, I always use Lard Oil, but I have tried fish oil, sweet oil, coconut oil, etc., with equally good results. Have a bottle always handy and walk down to the sty yourself every morning and pour two tablespoonful over Mr. Pig's pot water. Do not give more than two tablespoonful or it may prove too laxative. This is of course the dose for a fair-sized pig; a little fellow must not get more than half an ounce (1 tablespoonful.)

It would seem as if nature destined oil in some form as nutritious food for the pig. Look how he thrives on Mangoes and Pears. I have never seen an analysis of these fruits, but if I am not greatly mistaken the main ingredients of the mango are malic acid and tartaric acid and an essential oil, either oil of Turpentine or something very closely resembling it. The Pear contains large quantities of an oily substance known as olein and isn't Mr. Pig in elegant condition while the pear season lasts!

(B). There usually arrives a time in the life of sty-kept pigs when they become dull and listless and refusing all food, lie down

and grunt as if in pain. Some people say that a pig which shews such symptoms is "cloyed" or disgusted with life for the time being. I may be wrong, but I always regard this unhappy condition as due to acute indigestion and treat it accordingly. Leave him alone for 24 hours, and then coax him to eat little bits of St. Vincent yam or pieces of ripe banana, etc., in which you have cunningly concealed equal parts of Baking Soda and Charcoal. When you have succeeded in getting him to take a total amount of about a tablespoonful of each of the above-named remedies he is pretty certain to feel better, because the Baking Soda will neutralise any acidity in the stomach and the charcoal will stop fermentation. As soon as he shows signs of partially returning appetite give him four tablespoonful of oil instead of two as usual. This will act as a purgative and will clear out the stomach and bowels of all offensive matter. It is not a bad plan to sprinkle a handful of charcoal over the food occasionally, and a drop or two of Jeyes fluid should be added to the drinking water every now and then.

(6). We will not discuss the relative values of foods to-night, but no matter what kind of feeding is used, always remove whatever food is left from each meal. Food of any kind left exposed to the air rapidly turns sour and decomposes, and becomes highly dangerous. The eat and "lef" principle has caused many a poor man to bewail the loss of a promising pig. Feed at least twice a day. One tremendous meal at night always results in indigestion by dilating the stomach too much.

(7). I have always believed that "hog sick" was some form of carbon or anthrax. This, as you all know, is a very malignant disease which causes rapid decomposition of the blood. It only attacks rich blooded animals in the prime of health. Should you hear that "hog sick" is busy in your locality, knock off feeding at once and half-starve your pigs till the epidemic has worn itself out. Thin pigs are better than dead ones. If in spite of your efforts the disease kills several of your animals see that the carcasses are burnt thoroughly and completely.

(8). Little pigs are greedy little things and frequently get choked with bits of cocoa-head, breadfruit, etc., in an effort to swallow more than their throats can accommodate. This obstruction can sometimes be overcome very quickly by catching the unfortunate piglet and holding him upside down while at the same time a second person strikes him smartly over the throat. Too much force should not be used or the delicate membranes of the throat will be injured.

(9). I would advice you to experiment until you find out the type of pig best suited to your locality. I have on several occasions bought expensive pigs in Kingston and St. Andrew only to find that they would not thrive on my red dirt place. The particles of red dust seemed to have a most irritating effect on their nostrils and lungs, they developed a dry husky cough and either died or remained for many months in an unthrifty condition. The idea that the same breed of pig will thrive equally well in all parts and at all elevations of Jamaica is altogether a mistake; at least such has been my experience, and as I said before there is no knowledge so convincing as that which we gain by personal experience.

There are many other interesting points about the pig and his care which we will discuss on another occasion.

HOUSEHOLD HINTS.

(These recipes refer to "Irish" not Sweet Potatoes.)

MASHED POTATOES.—Take $\frac{1}{2}$ lb. cooked potatoes, 1 oz. butter or dripping, 2 or 3 tablespoonfuls milk, white pepper and salt. The potatoes should be well cooked, dry, and floury. If newly cooked and hot, add the butter or good beef dripping to them, and mash them in the saucepan with a fork or potato masher until they are quite smooth and free from lumps. Then season to taste with the white pepper and salt, and moisten with a little milk. If cold potatoes are being used up, it will be better to rub them through a sieve or put them through a vegetable presser. Melt the butter or dripping in a saucepan with a little milk, and add the sieved potatoes to them. Season to taste, and stir over the fire until thoroughly hot. Put the mashed potatoes into a hot vegetable dish, piling them up in the form of a pyramid. Mark prettily with the back of a fork, sprinkle a very little chopped parsley on the top, and serve at once. Or, put the mashed potatoes into a greased fireproof dish, smooth over and mark with the point of a knife. Brush over with a little milk or beaten egg, and bake in the oven until nicely browned

TO STEAM POTATOES.—Steaming is one of the simplest and best ways of cooking potatoes. Prepare the potatoes as for boiling, and cut them to an equal size. Put them into a steamer, and sprinkle with salt. Place the steamer on the top of a saucepan of boiling water, and put on the lid. Keep the water in the saucepan underneath the potatoes quickly boiling all the time. The time for cooking will depend on the size and kind of potato. When they can be pierced easily with a skewer, cover them with a clean cloth, remove the steamer from the water, and stand it in a warm place until the potatoes are dry and mealy. Ten minutes should be sufficient. Time to cook, thirty to forty minutes.

TO ROAST POTATOES.—Wash and peel the required number of potatoes. Put them in a saucepan with boiling water to cover them, and add a little salt. Allow them to boil for ten minutes, and then drain. Dredge the potatoes with a little fine flour, and put them in a baking tin with some good melted dripping. Cook them in a moderate oven until they are nicely browned and cooked through. They should be turned over occasionally during the cooking. Drain them from the dripping, and sprinkle with a little fine salt before serving. If a joint of meat is being roasted the potatoes may be cooked in the same tin, putting them in the required time before the meat will be ready. Time to cook, thirty to forty minutes.

WHEN BOILING POTATOES.—Remember to select the potatoes all one size, or as nearly as possible. It is impossible to boil small and large potatoes properly together.

To nearly cover the potatoes with water.

To add as much salt as tastes the water.

To bring them slowly to the boil.

To boil the potatoes slowly: the larger the potatoes are, the slower they should be boiled, because the heat takes longer to penetrate to the heart. For very large potatoes a little water may be added once or twice, to prolong the boiling.

To drain them before the skin cracks in the least, but not quite dry.

To allow them to steam five or ten minutes with the lid on, and a few minutes with it off. They may now be quickly peeled and dished up.

Some kinds of potatoes will cook better if put on in warm water instead of cold; one or two trials will soon show which is best.

STOCK NOTES.

BLOODY MILK.—A correspondent asks how the milk from his cow is bloody. This sometimes happens especially in heifers just come into milk when they are of dairy strain and give a large quantity of milk, and still more especially when they are feeding on fresh young grass at the same time. The course to follow is to milk clean out, shift to older feeding if possible, and the milk will within two days come all right. If, however, the cow has got a blow on the udder, or slipped somewhere and strained itself, bathe the udder with hot water and bathe with a cooling lotion, (Zinc Sulphate, and Lead acetate lotion) or rub in a good "Healing Oil."

ANTHRAX.—Recent investigations have made it very plain how dangerous it is to leave carcasses of any animals that have died from Anthrax lying on the ground to be eaten by John Crows, dogs, pigs, etc. Such carcasses should be burned immediately the animal dies. Investigation proves that infection can be carried by John Crows, dogs, swine, cats, flies and even fowls.

—————:O:—————

WARTS ON COWS.—There are different kinds of these on animals. Cows are often badly affected by them. If the warts have necks they can often be pinched off with the fingers, or if not, a fine thread or horse hair loop drawn tightly around will cut into the necks until they can be easily taken off. Then the spots should be touched with coal tar. Those warts that are round and flat, can be seared with a hot iron, and then anointed with Castor Oil. When there are masses of small flat warts these can be touched lightly with a hot iron and then oil; or simply rubbed daily with castor oil to which has been added about one-fourth of coal tar.

Warts on the teats of milking cows are very troublesome, as, if sore at all, they may cause the beasts to kick when being milked. These warts, however, should be attended to when the cow is out of milk by slicing off with a sharp knife if the warts are pendulous and just touching with a fine red hot iron—we use an old pocket pen-knife blade; if flat warts, touch with the red hot knife blade, then anoint with the Castor Oil and coal tar mixture, and this treatment will get rid of them. If left until the animals are in milk the only thing to do is to rub the warts with castor oil.

—————:O:—————

STRAIN.—"Can you help me to save the life of my favourite pony? He became sick this way:—On Monday, 31st May, I found him with a swelling under his belly, his cod swollen to the left side. I observed the ground and noticed a stump with hair on it, it appeared that while rolling he squeezed the cod to the back of it. During the first week the swelling reached to the chest between the front legs. I used a bottle of Elliman's Embrocation which brought down the swelling on the abdomen but with all my effort the cod is still swollen. I tried a poultice of cornmeal and mustard but failed. I used the knife. It drained a good deal of liquid. The swelling bulges to the left flank and measures 19 inches across and 15 inches to the back of cod. It is still hard to the touch.

Should you recommend anything that is not easily procured in the country please purchase and send and money will be promptly refunded.

I know you are a busy man but the life of a favourite horse will nerve you to make a quick reply. Thanking you in advance."

Gayle.

* * * * *

You seem to have treated the trouble pretty well. The pony may have strained and also cut himself slightly, and poisonous matter entered through the wound however slight. We could only recommend hot fermentations on the swelling and painting with Tincture of Iodine daily, with rest and plenty of green food.

—————:O:—————

FARCY.—Farcy is by far too common and causes great loss in mules and donkeys being incapacitated from work on the roads. Many

think it is incurable and destroy their animals; others keep their beasts for months and months doing nothing, but all the time using this and that kind of treatment which sometimes is successful. Nearly all cases of Farcy can be treated and made better within six weeks if attacked in the proper manner internally and externally simultaneously. We have seen six successive cases treated successfully in that period.

Flies spread Farcy more than any other medium. It should be made illegal for any beast to remain with open farcy sores untreated, whether on a man's own premises or not.

A mixture of Stockholm Tar and common Castor Oil equal parts, is a good dressing to keep flies off. This will not cure; it is only a good sticky antiseptic dressing for such sores.

—————:O:—————

PIGS.—Give pigs that are confined plenty of green vegetable food, for especially in this hot weather and with the new corn crop coming in and plenty of green bananas being fed or overfed, there will be epidemics of sickness again. We say green vegetable food because many people who feed green bananas think that is enough. We mean by "vegetable," plenty of juicy grass and vines; cocoe stalks are excellent.

On the first symptoms of illness, and that is the refusal of food, give plenty of water to drink with some "Salt Physic" in it (Epsom or Glauber Salts).

Give plenty of shade too in these days of hot sun. If the pig refuses to drink the water with the physic which is not likely, but sometimes happens, then give the Castor Oil dose so often mentioned in this JOURNAL, about two ounces of Castor Oil (four tablespoonfuls) and two teaspoonfuls of Turpentine or a coal tar disinfectant per 100 lbs. of hog. This is a light dose.

—————:O:—————

PIGS.—One of the best medicines for pigs especially those confined is always at hand. A correspondent in an American Farm Journal says:—

"Now more than sixty years ago I read in a farm paper that wood-ashes would prevent hog cholera. At once I filled a lard tin with ashes and carried the ashes to the five hogs left, and they devoured the ashes as so much corn mush. I had lost then nearly 200 hogs. Since then I have given my hogs wood-ashes and never have lost one. Before this when I killed my hogs I would have to throw away nearly all the livers because they were so diseased. I would find worms ten inches long and as large as a cedar pencil, in the entrails. Now livers are all good and sound and there are no worms in bowels. Before using ashes the hogs were very hard to fatten; now I have no trouble in this respect.

"EXPERIENCE."

—————:O:—————

HOG CHOLERA.—It is stated that where sour milk is fed to hogs they seldom fall victims to Hog Cholera, when they are otherwise kept in good condition.

—————:O:—————

RABBITS.—When these animals are thin and shabby looking in spite of plenty of food, catch one up and examine it for lice. Like goats, but not to the same extent, rabbits sometimes are infested with lice quite unknown to, and unsuspected by the owners. If lice are found, clean out the whole rabbit hutch and dust dry sulphur all about it and into the ears of the rabbits too, catching them up for

the purpose. Then put dry bedding in. Repeat this in three or four days. Rabbits do not like to be wetted, but a careful wash or dip into a disinfectant mixture will kill the lice; remember to rub round the face. We prefer the dry sulphur method.

If there are no lice and the rabbits sit huddled up, but occasionally seem uneasy, suspect worms. These are also parasites that people do not suspect rabbits to suffer from. One teaspoonful of Castor Oil with 4 to 5 drops Turpentine or coal tar disinfectant like Jeyes repeated in the oil twice in one week will pass the worms. Clean out the hutches after each dose.

-:O:-

POULTRY NOTES.

The true test of the value of fowls is their performance. A dual purpose fowl suits circumstances in Jamaica best as table fowls are wanted almost every day in the average country household, and a decent size and weight is required. To be of full use we do not think the average grown hen should weigh less than 5 lbs. (gross weight) and the average grown cock 7 lbs. and around that weight (not less) With this weight there is no need to have hens that are not also first class layers.

It was the opinion some years ago that fine layers must run small on the lines that Jersey and Guernsey cows are small but great milkers, yet dairy Shorthorns are not small cows but large animals and they give more milk than Jerseys. Some writers do not believe in the existence or usefulness, or profitableness of a dual purpose cow, yet they believe in and write about the usefulness of the medium size hen, good for laying, and for table at one and the same time.

The success of the White Wyandotte breed in the great laying competitions both in the United Kingdom and the United States proves that hens can be of good size and yet of a type that can lay. The most successful White Leghorns in the laying competitions in the United States have been of the English type, larger fowls now than were formerly thought possible to make the best layers. We have, too, worked on this idea for some years, and have a laying breed, formerly to the small side, the hens of which when placed in the breeding pen last November averaged $5\frac{1}{2}$ lbs. weight, and the cock was $8\frac{1}{4}$ lbs. Hens that commenced laying in November are still laying in July, although we were unfortunate enough to lose two of the best by accident.

Then there was a time when it was thought necessary to sacrifice type to laying powers. That also is not necessary now, for where hundreds up to thousands of pullets are hatched every year, by individual breeders there is so much room for selection that size, beauty, and laying type can be combined. We in Jamaica have not the same opportunity, as we do not hatch so many, and we should rather sacrifice outward form and shape, to secure the largest pullets from the best laying hens. It is a matter of selection and feed. The most important point is the selection of the cock. He is half the flock, perhaps more than half, as a poor cock can utterly ruin the succeeding fowls for utility. Select the best all the time.

What we want in Jamaica is a good local breed as they have in parts of Cuba. The Cuban Game fowl is a most useful fowl, takes care of itself, finds most of its own food, yet does not get wild, and is as hardy as a wild bird. There are, too, some good laying strains of these

small Games. But for our circumstances it is too small a fowl, and the eggs are too small. Judicious crossing might result in a larger fowl of the same general type, hardy, easily fed, fair weight, fair layer

Fowls of successive generations bred here are ever so much harder than imported fowls, and their mistaken descendants.

* * * * *

This has not been a good year for hatches but it was been an excellent year for health of chickens with us. We have not yet had to lift one from the ground to doctor it internally, and have only doctored one externally—so far. There is not a three weeks since Christmas week that we have not had a hatch or several hatches, yet twenty per cent of the chickens are *non est* gone. First a hog ate up part of two broods: young chickens were then kept out of the pen where this hog was: then a Great Dane pup amused herself chewing up some; the dog was taught severely not to touch chickens; about 10 were trampled on at different times by ponies in the stable, and it is useful to let chickens scratch in the stable, as they are the best destroyers of the larvae of the housefly, and of course feed themselves there.

We can trace no loss to Mongoose as two traps are constantly set and 3 terriers hunt around, but there might be a few. The greatest loss is from hawks as when the chickens have left their mothers and wander far and wide, the hawks which are always circling about, get one now and then. Small settlers are the greatest sufferers from hawks and yet will not often take the trouble, even when they possess a gun, to watch patiently and shoot the hawks. Yet they will spend a whole day after birds in the bush and woods for "sport." The offer for half a crown to every hawk brought in has resulted in one in two years.

Hawks can be poisoned with Nux Vomica, a mild form of Strychnine.

Get some common chickens—cost 6d.—keep in a coop, feed on soft food, with an allowance at the rate of one drachm of Nux Vomica (Strychnine) to 12 chickens: fowls can stand large doses of Nux Vomica which other birds and beasts cannot stand. In 7 to 10 days tie out, (with a thin string easy to break) a few of these chickens in a field and let the hawks take them. The hawk will certainly die from poisoning. This method is only of great use when the hawks have young ones in the nest, as these will be poisoned. On the whole the gun is the easiest check on hawks.

Fowls must have a dust bath. See that they get some loose earth mixed with Wood Ashes. Where lice are specially bad, add a handful of sulphur. Where there are many fowls several dust baths should be so prepared.

————:o:————

MOULTING.—Owing to the very hot weather fowls will be moulting earlier than usual, and the best layers, those that commenced laying in October and November last year, moult earliest. Put a little sulphur in the food as this will help the fowls to re-feather. One teaspoonful to a pint of meal is the dose. Remember also a handful of charcoal in the soft food, or one tablespoonful to a pint of meal.

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GUINEA FOWLS.—It is getting rarer and rarer to find this fine bird on the table: fewer and fewer are being kept. Yet there are parts where Guinea fowls can still be bred largely without disturbing

neighbours. In the Liguanea Plains where there are stretches of wire grass; in the plains of St. Catherine, in Vere, on the sugar estates of Westmoreland, in the coastal districts of Hanover, St. James and St. Ann. But fresh blood is badly needed. There has been little exchange by breeders. The birds are left to mate now they please, and as flocks are small, the birds breed in and in until the young ones have no stamina.

:O:
COMMENTS.

BANANA MEAL.—We notice that experiments have been tried in the United States in the use of potato flour to help out wheat flour, and it has been found that potato flour costs as much as wheat flour, as would be expected in a country which has the largest production of wheat in the world, and not such a very large production of potatoes. In Germany, on the contrary, potatoes are cultivated so largely that they are the cheapest food available, and so at the present time they are using potato bread there, largely, *i.e.*, a proportion of rye, or wheat flour, with much potato flour, which they call "War Bread." Here bananas are plentiful and cheap at the present time—so plentiful that in banana growing districts they form the chief food for pigs. Now a bunch of bananas fed to pigs only gives a return of 1d. to 1½d. in pork, and the same bunch of bananas will give the value of 10d. to 1/- in banana meal.

Now if a hurricane was to come along between August and October and blow down all the bananas, all the yams and all such upstanding crops, there would be an immediate scarcity of food. The man, however, who had utilized his bananas to make banana meal and had a few barrels of this product stored away, would feel fairly comfortable. We strongly recommend anyone with bananas in quantity that they cannot sell profitably to start out making Banana meal. The process is easy. The bananas are simply taken on the turn, peeled, cut into chips and these chips can be dried in the sun or in a baker's oven, *i.e.*, where there is not a proper dryer. These chips can be stored in flour barrels and when wanted for use ground in an ordinary corn mill into meal. Banana meal forms a very fine stand-by in the household for porridge, puddings, and with half or less of wheat flour for biscuits, scones, and cakes.

:O:

FOOD CROPS.—Immediately War was declared in August last when it could not be foretold how long Britain would take to get command of the seas and there was risk of our imported food supplies being interfered with, we sent a circular to each Branch Society, and a copy to most Clergymen many of whom made reference to the subject in their pulpits on the following Sunday, urging immediate attention to the planting of food crops. All our Agricultural Instructors, too, were directed to make this their chief subject until they were satisfied that there was a large response, and this they did. In October reports were received that there had been such a planting of corn, peas, beans and sweet potatoes, that, given fair seasons, there was likelihood of a great abundance of food being available. This has been the case.

In the spring again the same efforts were repeated. There is now abundance of cheap food which has been further added to by the large quantities of bananas for local use available, because of the limited export demand this year.

The great drawback is that as seasons and time of crops as well as kind of crops differ in different parts of even a small place like Jamaica there is sometimes a superabundance of one particular food or fruit in one district which another district has not got, and means of transport are often too expensive to exchange or sell products on any scale.

Jamaica is so far fortunate that if cash is scarce we have local foods in abundance; there are home grown foods in abundance.

:O:

CORN.—All those who are growing corn should bear in mind to measure carefully a typical chain in the field of corn, that is, to measure the yield. We are all going in for large cobs, large grain and yellow corn, and for all we know at present, we may all be wrong. What we do want is the most prolific kind of seed corn so long as it has a fair grain, and unless a man knows his yield fairly accurately, he will not know whether he is working on the right lines.

Some of the most prolific kinds of corn in the world do not bear large cobs, have not large grains, but they are very sure growers with a steady average of 2 cobs to the plant. The yield per acre is the chief criterion.

SEEDS.—It may seem early to write about new season seeds but if we are to import in October as usual we should like to hear from those members and Branches who may want large quantities of vegetable seeds; and from all those who want seed potatoes to plant late in October or early in November, which is the season for the lowlands.

:o:

SCHOOL GARDEN COMPETITIONS.—The School Garden Competitions will be held on the same lines as previous years. One point that does not seem to be understood by the Teachers is whether they can use the land outside of their School Garden. This is allowed so long as it is in the School grounds. The rules were published in June JOURNAL.

:o:

DEPARTMENT OF AGRICULTURE.—We have just received (July 27th) the Bulletin of the Department of Agriculture (No. 8 Vol. 2) which is issued half yearly. It contains some very useful articles and 19 fine illustrations. The articles deal with Diseases of Cultivated Crops, by the Microbiologist; Sisal Hemp in Jamaica, Cattle in Jamaica, and Cauto Cotton by the Director of Agriculture; Tropical Fruits in Florida and Economic Entomology by the new Entomologist, Mr. A. H. Ritchie; A Banana bearing two bunches.

:o:

COWPEA HAY.—We have very often written of the value of Cowpeas grown through bananas, sugar cane, and other crops, and turned in as a green dressing when in blossom. We have sometimes written also, that when corn is planted it is well to plant the rows wide, say 5ft., and plant Cowpeas through. If the land is wanted to be kept up in fertility, cut down when in blossom, but if the Cowpeas can be used as grain profitably, as they usually can, reap them. If we could grow Cowpeas cheap enough to sell at 6/- a bushel, they would make a profitable addition to the feed for horses and fowls by adding a proportion to corn. There is another form in which the Cowpea can be used, and that is, as hay. The Cowpea vines can be cut when they are in blossom, put up in small heaps; then each heap turned over until they are fully dried, then stored in a stack and thatched over. The vines must be thoroughly dried, otherwise, they will ferment. Where dairy cows are kept and dry weather at a certain period is expected, a stack of Cowpea hay would come in handy.

:o:

WOOD-ASHES.—This is a grievous item of waste, especially on small settlers places and more especially where cane sugar is made. Wood-ashes are chiefly valuable for the amount of Potash they contain and Potash is a very dear Fertilizer at the present time for the chief Potash mines that supply the whole world are in Germany. One ton of unleached wood-ashes that have not been washed by the rain contain on an average 100 lbs. of Potash, 40 lbs. of Phosphoric Acid and 600 lbs. of Lime—Lime that can be used by the plants at once.

TEA.—Anyone who wishes to buy a considerable quantity of Assam Tea Seed can communicate with me. It would require to be imported from Upper Assam, but would be fertile seed.

:o:

LOCUSTS.—Swarms of locusts have been causing devastation in Central America according to reports from Costa Rica and other places. These locusts have also been causing much loss in Venezuela and Columbia. The plants chiefly attacked were palm trees of various kinds, corn, peas and beans and also Bananas, Coffee, Cocoa, but Tomato and Guinea Grass were not touched.

There is little chance of these locusts flying over the wide stretch of water between Venezuela and here but they have appeared in Trinidad which is only a short distance over a narrow strip of sea from Venezuela. As strict watch is kept here on all importations from Costa Rica it is not likely that the locusts can be brought into the island in any way.

:o:

HEMP.—In normal years about 200,000,000 pounds of binder twine are required for harvesting the grain and flax crops. Frow two-thirds to three-fourths of this is made from henequen sisal fiber, practically all of which is produced in Mexico and exported from the port of Progreso. This year the demand for twine is certain to be greater than ever. The disturbances in Mexico have caused an appreciable shortage in the stock of fibre now in this country.

There is plenty of room for the expansion of the Hemp Industry. We are years behind in growing Sisal or Henequen which by this time many of our driest districts should have been exporting largely.

ANTS.—Ants are often a great nuisance and may do considerable damage when they make nests at the roots of plants—especially young plants just set out. For a good many years now we have experimented slowly with some of the proprietary soil disinfectants sold under various names—such as Vaporite, Anterite, and Vermite, which are all pretty much the same. They are recommended to be applied to the soil to kill grubs which attack the roots of the plants, such as Wire Worms which attack the roots of potatoes, but we have found them also most useful in driving away ants. We have applied Vaporite in the evening where there were swarms of ants and in the morning there was not a sign of an ant.

We have some Apterite in stock at 6d. per lb. on trial. This is expensive, but when imported in very small quantities it does become very expensive; large quantities, however, could be sold at half the price. When Cocoa seeds are planted at stake and the young plants grow, ants are especially troublesome, making little hills round and on the plants. A sprinkling of Vaporite round the plants will keep away ants for a period.

—:o:—

DRYING CORN.—Let the corn dry well in the field, but if this cannot be done thoroughly, from any reason, keep the corn in the cob and dry it in the hot sun: cobs kept to supply seed corn should simply be husked and hung up in the breeze. Indeed formerly, when corn was not grown by hundreds of bushels but still in substantial quantities, it was dried in the cob and kept by simply folding back the husks and hanging up big bunches of the corn, if possible, under cover where it would get the breeze, but often simply on bamboo or other rods put through trees. The corn kept exceedingly well in that way and was shelled out as wanted.

When the weather is wet or there is too much in the way of small stock in the yard to allow the corn to be spread out in safety, or where there is a large crop and little drying accommodation, why talk about central dryers of large capacity, and do nothing meantime? Why not arrange with anyone owning a baking oven so many of which are scattered about the country, and for so much a bushel give the corn meant to be stored and kept, a half hour to one hour of moderate heat. The corn can be put in those ovens of metal sheets several tiers built up on loose bricks.

As a matter of fact, a drier for corn need not be elaborate, or expensive like a Cocoa Drier. One can be built entirely of zinc sheets for a few pounds to dry 50 bushels at a time. And corn does not require long to dry.

When the corn is shelled do not fling away the cobs. If you can find no other use for them, make charcoal of them and feed a big handful every day to the pigs in their food.

—:o:—

SUN FLOWERS.—It is reported that the Germans have succeeded in making a substitute for butter out of sunflower oil. Great crops of sunflowers are being planted all over that Empire in vacant places, along roads, and at railroad stations, with the idea of securing as large a crop as possible for making sunflower butter. As everyone knows who has ever tried to cure sunflowers in a damp climate, the seeds are oily, and the oil has a pleasant odour and taste. The German chemists work miracles in their laboratories, and there is no doubt whatever that they will work out this plan of utilising sunflower oil. There will be great industrial discoveries growing out of efforts to obtain food which may have a greater effect upon the world than any changes in the map of Europe. The discovery of oleo during the siege of Paris has certainly had a far-reaching effect upon the dairy industry, and such work as this utilizing of sunflower oil, or the discovery of new uses for the potato crop will, in the future, change the eating habits of human beings, and thus change the agriculture of the world.—*Rural New Yorker*.

—:o:—

BANANAS.—In July Jamaica bananas were selling in the London market at £12 to £14 per ton. It is contended by correspondents that if sold by weight bananas should be bought by the weight.

—:o:—

HALF YEARLY GENERAL MEETING.—The Half Yearly General Meeting held at this Office on Thursday, 15th July, beginning 11.40 a.m., was very well attended. It was indeed the best attended of any since the General Meetings were held half yearly.

The Board room was crowded to the door, some of the delegates having to stand in the verandah. It was a hot day and the room not having a high ceiling, although well ventilated, was very hot. The meeting lasted from 11.40 until after 3 o'clock. This was far too long and yet all the business of the Agenda was not got through; indeed if all the Resolutions sent in to the Secretary had been put forward there would have been an all night and next day sitting.

The most absorbing subject to most of the delegates was the Buying of Cocoa. The following Resolution was moved and passed unanimously:—

"That it be a recommendation to the Government to abolish the license to purchase cocoa in pods or wet cocoa, unless to persons possessing approved premises and appliances for the cruing of cocoa for reexport."

But this does not cover all the ground of the Resolutions sent in on the subject but these will be dealt with in Committee.

Resolutions in connection with the Buying of Cocoa as follows were not dealt with:—

More efficient means and methods of inspecting Produce Buyers Books.

Permits to sell Cocoa.

Severer punishment for breaches of the Produce Protection Law.

There was also a Resolution to add to the schedule of the Produce Protection—Law—Small Stock such as goats, pigs and fowls. This would be an innovation but is certainly worth discussing.

A fairly full report of the Meeting together with the Secretary's Report will be published separately.

—:O:—

FRUIT GROWERS ASSOCIATION.—Although most of our products have borne well, and prices for most have been very good, most of our difficulty consisting in getting enough shipping to transport our products, our chief exports consist of bananas to the extent of nearly 50 per cent of the total value of our exports. So when our banana trade is dull it affects the whole Island in about the same ratio, no matter how well other crops may have yielded and how well they may be selling.

When bananas are selling well, every man who has bananas is quite contented with himself and goes on the principle "Sufficient for the day, etc." When, however, there is storm, or drought, or some lowering of prices through dull trade in American and European markets, or through manipulation of trade by the Companies who are shipping, or through a situation like the present when there are combinations of circumstances making the demand for bananas here very limited, then there is a great cry for something or other to be done by the Imperial Government, or the local Government, or the Agricultural Society or all of them. At present we receive letters almost every day in this connection.

What is wanted is a special combination like a Fruit Growers Association, run preferably on co-operative principles, with shares taken according to the average number of acres of bananas cultivated; orders for fruit to be pooled, and output regulated, with a small tax, say a farthing a bunch paid in to the Association to provide a fund, which would be used for the purposes of the Association, one of which would be an insurance for the benefit of members suffering serious loss through any cause. It would be far better for banana growers to receive help in a difficulty from an Association of their own than be bound up with any Company or individuals.

Such an Association was actually proposed and partly organised in 1903 immediately before the hurricane of that year. There was a large and enthusiastic meeting in the old office of the Agricultural Society in Port Royal Street the Board Room being crowded to the door; everybody was in favour of the scheme. The late R. A. Walcott, Solicitor, acted as legal adviser free, the writer acted as temporary Secretary free, the original organisers amounting to, if we remember right, four or five acted as a temporary Committee.

But when the articles of the Association were submitted and put forward binding members of the Association tightly under a penalty to adhere strictly to the rules of the Association—what happened? The enthusiasm evaporated—the meeting called to sign the Agreement consisted of the Committee and one or two more.

If that Association had been formed, not for offence but for defence, for the protection of all banana growers who were members of the Association, no banana buying company could discriminate between growers as to who would get orders and who would not; then orders would go to the Association to give out, according to acreage, when there happened to be more fruit than demand; and by this time there would have been a substantial fund amounting to some £50,000 probably, available for any emergency.

However, after our experiences of 1903 we have let the matter of a Fruit Growers Association alone. It is still possible, always has been possible, but not probable on the wide, co-operative principle including large and small growers of some standing that alone would be effective and of best use to the Island in general.

WAR GIFTS FROM JAMAICA.

I.—SHIPMENT PER S.S. "CORONADO," ON JUNE 21ST, 1915.

Donor.	Address.	Quantity.	Kind.
H. F. D'Aguilar	North Hall, Chapelton	25 Boxes	Grape Fruit.

II. SHIPMENT PER S.S. "MANZANARES," ON JULY 1ST, 1915.

A.—Preserves.—

Donor.	Address.	Quantity.	Kind.
Alf. A. G. Lawson	Kingston	1 tin 10 lbs.	Grape Fruit Marmalade
Mrs. W. W. Wynne	Mandeville	8 tins 80 "	ditto
Misses Harding	Mandeville	4 " 40 "	ditto
Miss Muirhead	May Pen	2 " 20 "	ditto
Mrs. C. G. Farquharson	Black River	9 " 90 "	ditto
Mrs. H. E. Crum-Ewing	Mandeville	4 " 40 "	ditto
Mrs. M. Wong Lee Kin Kee	Kingston	1 " 10 "	ditto
Miss M. T. Davis	Kingston	1 " 10 "	ditto
Mrs. A. Westmoreland	Annotto Bay	6 " 60 "	Guava Jelly
Mrs. F. Barnet-Brown	Fairy Hill	2 " 20 "	ditto
Mrs. W. W. Wynne	Mandeville	1 " 10 "	ditto
Mrs. J. Silvera	Oracabessa	1 " 10 "	ditto
A. B. Lowe	Adelphi	1 " 10 "	ditto
Mrs. E. A. Miller	St. Margaret's Bay	2 " 20 "	ditto
Mrs. Iris Chen	Kingston	1 " 12 "	ditto
Henry Chin	Kingston	1 " 12 "	ditto
A. C. Bancroft	Golden Grove	2 " 7 qts.	Honey
Total		47 tins=454 lbs. preserves & 7 qts.	Honey

B.—Fruit.—

Adam Roxburgh	Walkerswood	25 Boxes	Oranges
L. L. Roper	Walkerswood	25 "	"
Robt. Craig	Chapelton	10 "	"
		10 "	Grape Fruit
Total		60 boxes Oranges & 10 boxes Grape Fruit	

C.—Miscellaneous.—

Mrs. W. E. Powell	Half Way Tree	1 Case	Clothing
Chas. Noel Eddowes	Half Way Tree	1 Cask, 28 galls.	Honey
J. F. Thompson	Falmouth	9 Cases, 554 lbs.	Banana Figs
			(Part of a ton paid for by the donor)

D.—Gifts for Individuals.—

Sender.	Gift.	Addressee.
Mrs. Clark, Half-Way Tree	1 tin 12 lbs. Guava Jelly	Nurse Mary Clark, Nurses' Home, Royal Infirmary, Manchester, England.
	1 tin 12 lbs. Guava Jelly	Trooper W. G. Clark, 4th Troop, C. Squadron, : King Edward's Horse.
Alex. Gordon, St. Ann's Bay	1 tin 10 lbs. Guava Jelly	Major H. S. Sewell, 4th Royal Irish Dragoon Guards.
	1 tin 10 lbs. Grape Fruit Marmalade	Brit. Exped. Force.
Hon. E. F. H. Cox, Half Way Tree	1 tin 16 lbs. Roasted Cashew Nuts	Private H. B. Cox, 1st Canadian Contingent, : Scottish Division, Hospital St. John & St. Elizabeth, 40 Grove End Rd., London, N.W., Eng.

Mrs. N. Roots, Secretary Victoria League Jamaica Red Cross Branch, Kingston	5 tins 52 lbs. Guava Jelly 2 tins, 20 lbs. Ginger in Syrup 5 doz. Turtle Tablets 133 lbs. Ground Coffee 1,300 Cigars 2,000 Cigarettes	Red Cross Head Depot, London.
Mrs. Stone, Oracabessa	5 tins 16 lbs. Guava Jelly and Dolce	Lieut. D. L. Tate, R.A.M.C No. 3 Gen. Hospital, Brit. Exped. Force, Le Trepont, Mers, France
C. E. Scudamore, Port Antonio	4 boxes, 200 cigars	Private H. G. Scudamore, No. 4 Co., 2 Bat., H.A.C. The Tower, London, Eng
C. F. Pengelley, Balaclava	7 lbs. Ground Coffee	Red Cross Head Depot, London.
Mrs. Richards, 64 Gold St. Kingston	24 boxes Banana Figs 2 boxes Cigarettes (50 packs each) 1 tin 10 lbs. Guava Jelly	Corpl. H. D. Richards, 28080, 1st Canadian Con- tingent, Compagnie des Prisonnaires Baragne 'D' Guessen, Germany.
J. E. McCrea, Port Antonio	1 tin 10 lbs. Grape Fruit Marmalade.	H.M.S. "Marlborough."
Miss J. Husband, May Pen	1 tin 10 lbs. Grape Fruit Marmalade.	
Mrs. R. G. Black, Tower St., Kingston	1 tin 12 lbs. Guava Jelly	Driver W. Black, R.F.A., 71709, 27 Div. Artil- lery, Head Quarter Staff, Brit Exped Force, France
Mrs. M. E. Clemetson, 120 Duke St., Kingston	1 Case Miscellaneous Pre- serves	Private D. L. Clemetson, Sportman's Battalion, Grey Towers' Barracks, Hut 13, Hornchurch, Essex, England.
H. L. Mossman, Bog Walk	1 Case Miscellaneous Pre- serves and Tobacco	Trooper E. L. Mossman, 1st. King Edward's Horse, Brit. Exped. Force, France.
Mrs. Hilson, Dove Cot Park, Spanish Town	1 case containing Woollen Articles of Clothing	Mrs. Gossip, Daily Sketch Office, Shoe Lane, London

SHIPMENT PER S.S. "CAMITO," JULY 19TH, 1915.

A.—Preserves.—
Donor.

Donor.	Address.	Quantity.	Kind.
The Misses Harding	Mandeville	4 tins 40 lbs.	Guava Jelly
Mrs. Alexander	Mandeville	4 " 25 "	ditto
Mrs. Capstick	Walkerswood	1 " 10 "	ditto
The Misses Harding	Mandeville	2 " 20 "	Pine Jam
Mrs. H. E. Crum-Ewing	Mandeville	3 " 30 "	ditto
Mrs. Griffiths	Mandeville	4 " 40 "	Grapefruit Marmalade
Mrs. C. G. Farquharson	Black River	3 " 30 "	ditto
Mrs. Alexander	Mandeville	1 " 10 "	ditto
Mrs. C. G. Farquharson	Black River	1 " 7 "	Mango Jam
Mrs. Buckland	Kintyre, Hope, Kingston	6 Jars 9 "	Guava Jelly
		4 " 6 "	Pres. Tamarind
Mrs. C. G. Farquharson	Black River	2 " 4 "	Pres. Mango
Miss Mary Lynch	Middle Quarters	1 tin 21 "	Cashew Candy
		1 " 29 "	Ginger Sugar
		2 tins 13 "	Coconut Candy

Total

27 tins & 12 jars, equal 294 lbs.

B.—Clothing.—

The Misses Farquharson	Black River	1 case (about 250 pieces Clothing)
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C.—Ginger Sugar.—
Christiana District, (per
R. J. Miller)

Christiana

45 cases (3375 lbs. Ginger Sugar

D.—Citrus Fruit.—
Donor.

Address.

Oranges Grape Fruit Limes
No. of Boxes Given.

Rev. H. B. Walcott	Richmond	—	6	—
Adam Roxburgh	Walkerswood	25	—	—
Anthony Benn	Spring Hill	7	—	—
Mrs. H. M. Butcher	Chapelton	—	26	—
Mrs. H. E. Crum-Ewing	Mandeville	6	—	—
Mrs. Anna Maxwell	Myersville	1	—	1
L. L. Roper	Walkerswood	25	—	—
Miss Anna Crossley	Buff Bay	3	3	—
S. L. N. McGann	Spring Hill	6	2	—
R. E. Lewis	Mandeville	16	—	—
F. J. Delapenha	Mandeville	12	—	—

Total

101 37 1

E.—Walking Sticks.—

Donor.

Address.

No. Given.

C. S. Chamberlain	Kingston	23	
R. S. Haughton	Kingston	7	
Mrs. W. J. Nash	Dry Harbour	6	
Mrs. M. Earle	Leinster Rd., St. Andrew	3	
Miss F. L. Sharpe	Retreat	110	
Miss M. Harris	19 Rum Lane, Kingston	1	
J. A. Gutierrez	Sevens, May Pen	120	
Mrs. Wynne	Mandeville	300	
W. H. Westmoreland	Highgate	20	
Wm. S. Allen	Mt. Zion, St. Ann's Bay	25	
W. Hyde McCaulay	Spaldings	about 250	(540 sent but some held over for next shipment.)
M. E. Muirhead	Mandeville	132	
The Misses Davies	Salt River	18	

Total

1,015

F.—Special Gifts for Individuals.—

(1) PRESERVES, ETC.

Donor.

Gift.

Addressee.

J. T. Musson, Glenwood, Brown's Town	1 box (50 packs) Cigarettes	Pte. Eric C. Musson, 3025, No. 4 Coy., 2nd. Batt., Hon. Artillery Cr., Brit. Exped. Force, London.
L. W. Huddle, c/o Sadler's 1st Store, Kingston	100 Cigarettes 25 Cigars, 3 lbs. Preserves	Sergt. Huddle, 777, 37 Inf. Bge., 6th S. Batt., D. Coy., Buffs, Brit. Exped. Force.
Miss E. Mossman, Moneague	1 tin Tobacco, 8 packs Cigarettes	Trooper E. L. Mossman, No. 1022, A Squadron, 1st King Edward's Horse Attached to 12th Div., Brit. Exped. Force, France.
W. C. Ward, Kingston	800 Cigarettes	Trooper W. D. Clark, 804, 4th C. Squadron, 1st King Edward's Horse, Div. al Cavalry, 4th L'dn. Div., Brit. Exped. Force, France.

Joshua Francis, Jamaica Railway, Kingston	4lbs. Preserves.	Pte. C. K. Lyon, 55239 A. Coy., 19th Batt., 2nd. Canadian Contingent, 4th Infantry Bge., Brit. Exped. Force, Sandling Camp, London.
ditto ditto ditto ditto		Pte. L. D. Lyon, 10141, A. Coy., 3rd Batt., 1st. Can- adian Contingent, 1st. Infantry Bge., Brit. Exped Force, Army P. O., Lon.
ditto ditto ditto ditto		Louis Lyon, 14933, prisoner of War Camp, Meschede, Germany.
Mrs. Pike, Waterloo Road, 1 tin (10 lbs.) Guava Jelly, Kingston 1 tin (10 lbs.) Orange Mar- malade		Trooper A. R. Boor, Re- serve Regiment, 1st. King Edward's Horse, Bishop's Stortford, Hert- fordshire, England.
Mrs. Fyfe, Walderston 9 boxes (50 packs each) Cigarettes		Sergt. Arthur Field, 2nd. Batt., Canadian Contingent, L'Hopital des Soeurs Evangelines, Ober- hausen, Rhineland, Germany.
R. S. Haughton, Kingston 100 Cigars, 1200 Cigarettes		Harold M. Haughton, Esq., 2nd Lt., 77th Coy., R.E., Flanders.

(2). CITRUS FRUIT.

Mrs. Anna Maxwell Myersville	1 box Oranges	Lt. Simmonds, 5th Batt., R.F.A., VIII. Div., 4th Army Corps, Brit. Exped Force, France.
ditto ditto	1 box Grapefruit	Lance-Corpl. C. Maxwell. No. 13624, No. 1 Coy., K.R.R.C., Winchester Barracks, England.
Mrs. S. Moxsy, Chapelton	1 box Oranges	F. Allwood, Esq., c/o. Headquarters Staff, 1st. Bge., C. F. A., Brit. Exped. Force, France.
ditto ditto	1 box Oranges	R. N. Staight, 14191, 1st. Troop, C. Squadron, 10th Royal Hussars, British Exped. Force, France.
ditto ditto	2 boxes Oranges	Lt. A. R. Moxsy, 2nd Royal Inniskillen Fusiliers, 5th Bge., 2nd. Div. British Exped. Force, France.
Mrs. H. M. Butcher, Chapelton	1 box Grapefruit	Corpl. C. E. Millington, 2209, Headquarters, Sec- tion 1, 1st. N.M. Signal Coy., R.E., Brit. Exped. Force, France.
Miss Lopez, 15 Blake Rd., Kingston	1 box Grapefruit	Pte. A. C. Lopez, No. 4495, 10th East Regiment, A. Coy., Limekiln St. Bar- racks, Dover, England.
W. Bagot Gray, Kingston	2 boxes Oranges	Gunner W. Bagot Grey, No. 85372, 10th Bge., R. Canadian H. Artil- lery, Woolwich.
Capt. W. E. Rerrie, The Orchard, Flint River	1 barrel Limes	The British Red Cross Society, 83 Pall., London, S.W.

BRANCH NOTES.

STEWART TOWN (Trelawny).—The monthly meeting was held on Wednesday evening, 30th June. The following were present: Mr. John Stockhausen (President) 1st and 2nd Vice-Presidents, the Secretary, Mr. E. Arnett, (Instructor.) 13 other members and several visitors. The following correspondence was read: (a) From Acting Assistant Colonial Secretary dated June 8, 1915, in reply to a letter from the Branch May 28, re the widening and deviating of the Main Road leading through Stewart Town on to Dry Harbour, informing the Branch that "owing to financial conditions it will only be possible to undertake new works of an urgent nature, that the work in question cannot be so regarded, and that when financial conditions become more normal the matter will receive consideration." The holding of a Local Show for the benefit of the members was discussed, and it was ultimately agreed to that the Show be held in March next. The Instructor urged on making Corn a speciality. The President impressed on the members the necessity of not only showing samples, but to grow a good quantity to put into the market. It is often the case that good samples are exhibited, but when the call is made for a supply it cannot be got. Messrs. Chas. A. McFarlane and A. W. Grant also spoke in favourable terms on the subject of corn growing, and it is certain that the cultivators here are going to specialize in corn cultivation in future. With the object of stimulating the interest of the members, the Secretary informed the Meeting that he had sent out a circular letter to the members who were absent at the Annual Meeting, and who were evidently losing interest in the Society. The letter was read, and is as follows:—

Dear Sir,—

The Annual Meeting of our Branch was held on Monday evening, 7th inst. Much business of vital importance to the Branch was transacted. The election of officers for this year took place. It has been felt that the members are not evincing that active interest in the Branch which they did a few years ago; and as the Society is considered a most useful one, it would not redound to our credit to allow it to languish and die. We have earned a good reputation as a Branch, let us maintain it. I would respectfully ask, therefore, that your former interest in the Branch be re-kindled, and show it in a practical way by attending the meetings as often as possible on the first Thursday evening of each month. Believe me, dear Sir, it will do you in particular, and our community in general, much good. There is nothing so helpful to prosperity as co-operative efforts. I do earnestly hope you will heartily respond to this invitation, and let there be a better turn out at all future meetings, and so encourage your President and other officers.

The President, Mr. Stockhausen, next brought up the matter of getting walking sticks for our wounded soldiers. The proposal met with the hearty approval of the meeting, and all promised to procure a supply. Mr. Arnett intimated that Mr. Cotter of the U.F. Coy. has promised to take the sticks at the ports where their steamers call. Mr. Arnett will supply the labels. Members who are in arrears with their subscription were advised to promptly pay up, and the Instructor took the opportunity of explaining to the members the advantage they have as members of the Branch in getting the JOURNAL, which cost a good deal to have compiled, printed, and circulated among the various Branches, and that the greater portion of their subscription remains with them for their benefit—5/- only going to the Parent Society as Affiliation fee. Mr. Leslie Arnett joined as a member, and paid his subscription. The subject of corn production will again be discussed at the next meeting in August.

JOSIAH JOHNSON, Secretary

MAHOE HILL (St. Mary).—The monthly meeting was held at the Schoolroom on Thursday, 1st July, at 5.30 p.m. There were present, 10 members and the Secretary. The 1st Vice-President called attention to the death of Mr. Charles Ayre, who was a very useful member, and moved that the Secretary send a letter of condolence to the relatives. This was unanimously agreed to. Letters from the Parent Society respecting the half-yearly meeting on 15th inst. was read and another acknowledging affiliation fee and list of members. The Secretary was elected again as Delegate, and he was instructed to put forward the following resolution:—"That the time has come when the Parent Society should advise some scheme whereby the small settlers may be able to obtain better prices for their produce." If it be left to the Branch Societies to move in this matter, nothing will ever be done. Praedial Larceny was discussed at some length. It was agreed that flogging will not check it, but better wages and more land for the people will be the only sure and lasting remedy.

W. A. SIBBLES, Secretary.

COOPER'S HILL (Portland).—A meeting was held on the 1st July, 1915. The regular meeting was postponed to this date in order to meet the Instructor, Mr. Cradwick, who was present. There were present also the Rev. S. M. Binger, (presiding), 12 members, the Secretary and some visitors. As arising from the minutes, the matter of buying Cocoa pods again came up for discussion. Mr. Cradwick urged that it be given serious consideration as it is one of the most important agricultural questions now before the Society. He said the following resolutions and suggestions would be discussed at the Half Yearly Meeting on the 15th July, and he would ask this Branch to support them: 1. That no person should be granted a license unless he can keep his books in English. 2. No person who has not the proper equipments for curing cocoa should be granted a license. 3. No person who has a license to retail liquor should be granted one to buy cocoa. 4. The Authorized Persons should be given authority to inspect the books of produce dealers. 5. Growers should be licensed to sell cocoa. All agreed that this Branch should support these resolutions. The Secretary then reported that the Committee on the Co-operative Scheme had not yet met. The President said he was jealous over the result of the Cottage Holding Competition in other parts of the parish. He had, therefore, to ask the Instructor to give the members some information about it. Mr. Cradwick expressed his pleasure in hearing this. He then read the rules from the June JOURNAL and explained the whole matter carefully. He hoped there would be members and others from this district competing in the coming Competition. He then mentioned that he is arranging to have a Cocoa Cultivation Competition among the members of each Branch in his district, which he promised to deal with more fully at his next visit in August. He was asked very many questions by several of the members about Cocoa planting and curing which he answered satisfactorily. The President moved, the Secretary seconded, and was agreed that 5/- be sent from the funds of the Society to the War Contingent Fund. Miss Roslyn Bradshaw and Messrs. John Micklejohn, W. H. Birch and Eugene Banbury became members. The meeting adjourned. J. E. BROOKS, Secretary.

CHRISTIANA (Manchester).—The regular quarterly meeting was held in the Court House at 2 p.m. on Friday, July 2nd, 1915. Present: R. J. Milier, Esq. (Chairman), Messrs. Thos. Powell (Instructor), C. D. Neilson (Inspector of Schools), and several other members. The Chairman told how highly a small gift of ginger sugar was appreciated by the wounded soldiers at the front, and urged on the Society to aid in sending a larger consignment of the same stuff. The Society unanimously voted the sum of five pounds (£5) to help in the sending of more ginger sugar. R. J. Miller, Esq., was chosen delegate to represent the Branch at the Half-Yearly Meeting in Kingston on July 15th, 1915. New members: Messrs. R. A. Ewbank, Robt. Gentle, jr., and John Walker. Meeting adjourned till October 1st., 1915.

W. M. O'MEALLY, Secretary.

LAMB'S RIVER (Westmoreland).—This Branch Society met at Mt. Hermon on Friday, 2nd July. Mr. H. Ward was asked to preside. There were 18 persons present. Letters were read from the Parent Society, dealing with Branch Notes, Half-Yearly General Meeting of the Society, etc. It was considered too late to send up any resolution from this Branch, as it would not reach the Secretary in time, according to the prescribed rule, neither was it practicable to send a delegate to the meeting. It was arranged that discussions be carried on from time to time on matters of practical importance that occur in the JOURNALS. The Peas and Tobacco competitions were dropped for the present. There was a discussion on Arrowroot, and it was decided to ask Mr. Barclay to make another effort in Canada, to see what could be done, as it is believed there will be a demand for this article in the hospitals in which the wounded soldiers are inmates. At the next meeting there will be a discussion on "Authorized Persons," their duties and requital; also a debate on Cocoa vs. Coffee. Mr. Briscoe gave an informal lecture on Cocoa and Corn. He advocated the importance of Cocoa cultivation; how it is easy to be grown in Banana districts, as both plants thrive together. With the facilities offered at the Montpelier Nursery, all should avail themselves of the privilege of getting plants free. He explained how the plants should be taken from the bamboo pots; also the process of fermentation, in the different varieties of Cocoa, and the time allowed for fermenting and drying. With regard to corn, he thought that these districts are capable of producing corn that would compare favourably with the best corn growing districts of the world, and it would be profitable to make corn growing a systematic industry. A vote of thanks was accorded Mr. Briscoe for his lecture. He replied, assuring the meeting that the best thanks would be the practical application of his advice in the lecture. The next meeting of the Branch was fixed for Friday, 3rd September, at 11 a.m. The Secretary moved a vote of thanks to the

Chairman for presiding over the meeting, to which he replied, stating that he takes pleasure in helping in any cause which makes for the improvement and benefit of the Island.

U. L. BROWN, Secretary.

HOPEWELL (Hanover).—The regular bi-monthly meeting was held in the Bethel Schoolroom on Friday, July 2nd, the President in the Chair. Minutes of May 7th were read and confirmed. Action of Postal Department *re* office at Flint River came up for discussion. The Meeting authorized the President to write *re* the removal of the Post Office. Mr. W. H. Rigg was appointed delegate to attend the Half-Yearly Meeting in Kingston in July. The cow peas in possession of the Secretary is to be sold at half price and re-imburse himself. It was agreed that authorized persons be insisted on to give reports regularly. Leonard Malcolm recommended as an authorized person for Great Valley. Leonard Malcolm, R. M. McFarlane of Unity Hall, and W. H. Rigg of Flint River, became members of the Branch. Mr. W. H. Rigg was asked to give some hints on sugar boiling at the next meeting. Subscriptions for the current year were handed in. Members were asked to contribute towards the Contingent Fund. Society promised to make an effort to raise £15 towards the fund. President agreed to give 1/- per week until £15 is raised. Flint River Sports in connection with Contingent Fund is to come off on 5th August on the Flint River Show Grounds. Loan Bank matter thrown out for members to think over, and a special meeting to be called to deal with it at some future time.

A. SHAW SAMUELLS, Secretary.

BAMBOO (St. Ann.).—At the regular monthly meeting held on the 3rd of July, Mr. Charles Smith, second Vice-President, presided. Fifteen members and the Instructor were present. Correspondence *re* Authorised Persons and E.X.O. for rats were read and discussed. The members have agreed to start a rat killing campaign as soon as the poison comes to hand. One dozen 1/- tins have been ordered for the Branch. Final arrangements for judging the plots of the corn competitors took place on the 5th inst. by the Instructor. The prize giving bids fair to be successful. Shed over the corn mill fixed for 17th inst., also Committee Meeting to consider plans for the improvement of the Society, and demonstration of the use of Cooper's Cattle Dip by the Instructor. Walking sticks brought in for convalescent soldiers at the front. Report from Treasurer of the Penny Bank respecting the lodgement of £7 in the Bank of Nova Scotia by the Trustees. Next meeting of the Branch, 1st Saturday in August. Members please note that attendance at monthly meetings, every first Saturday of month, strengthens the Branch and gives life to important subjects discussed. Very fair and seasonable weather since January. Price of bananas at the beach 1/1½ per bunch. Foodstuffs and sugar plentiful.

J. A. PERKINS, Secretary.

WINDSOR FOREST (Portland).—The regular monthly meeting was held at the Schoolroom on Monday, the 5th July. Mr. Edward Berry presided, and the Instructor, nine members and the Secretary were present. Arising from the minutes, the President asked for the report of the Committee appointed at the last meeting to audit the Treasurer's account. The Secretary explained that the Committee did not sit on account of unforeseen circumstances. The Chairman then moved, and it was agreed, that a new Committee be formed for the purpose of auditing the Treasurer's account, and to present a report at the next meeting of the Society. The Secretary read letter from the Secretary of the Parent Society acknowledging the receipt of Branch Notes of the 3rd May last, also the conclusion of the Branch *re* the Produce Protection Law. Five members paid in their fees. The Instructor gave his usual helpful address. The meeting adjourned at 9 p.m., to the first Monday in August.

C. A. SMITH, Secretary.

BULL HEAD (Clarendon).—On the 6th July, 1915, this Branch met, at Mt. Carmel. There were present, the Instructor, seven members, and a number of visitors, including many ladies. Mr. D. A. Robotham was asked to preside. The Instructor addressed the meeting. His subject was walking sticks for the wounded, and subscribing to the Contingent Fund. Mr. Reeves agreed to cart some to the Dank Station. The members present then subscribed 40/- and pledged themselves to augment this amount. It was moved and seconded that the Society's name be changed to the "Mt. Carmel" Branch Society. This was agreed to.

J. S. ROBINSON, Secretary.

ALBANY (St. Mary).—The regular monthly meeting was held on the 7th inst. The Rev. W. D. Henderson presided, and Wm. Cradwick, Esq., Instructor, was also present. There were twenty-five officers and members, and seven visitors. Dealing with the Show Committee matters it was found that there were difficulties

in the way of winding up, and two gentlemen were appointed to receive the report and present the results before the Society as soon as possible. Discussion next opened *re* the purchase of Cocoa in pods, Mr. Cradwick explaining what would be considered "proper equipment" for curing the cocoa, and a number of resolutions were passed in line with the same from Belfield Branch, with this difference, that, the minimum number of pods for which buyers should have curing equipment be 15,000 instead of 10,000. L. S. Clarke, Esq., gave notice that he had received his travelling certificate as delegate to the Half Yearly General Meeting, and he was prepared to attend as appointed. Four members were enrolled, paying thier subscription. Decided that meetings shall be held on first Wednesday in each month next meeting 4th August, at 4 p.m. H. F. Walker, Esq., reported the Society's pig to be doing fairly well. Mr. Cradwick intimated demonstration, Friendship, Tuesday, 13th July, and asked the members to be punctual. Adjourned.

C. L. DRYDEN, Secretary

RICHMOND (St. Mary.)—The monthly meeting was held on Wednesday evening, the 7th July, 1915. Present were: the Assistant Instructor, the President, 14 members and one visitor. The Secretary being unwell, his place was occupied by the Assistant Secretary. A letter from the Hon. R. P. Simmonds was read. The President informed us that he had recieved a letter from Mr. Barclay supplying an agenda and certificate relative to the Half-Yearly Meeting. The President corrected a misunderstanding arising from the Governor's address at the Richmond Court House on the 25th ultimo. The next thing dealt with was, the planting of corn and cow peas. This was so warmly taken up, that it became a matter of debate for the next meeting. That is, half an acre of corn, and half an acre of cow peas which is more remunerative. Mr. W. Thomas for corn, and Mr. T. Davis for the cow peas. Mr. W. Thomas gave notice that at the next meeting he will ask the Instructor to visit his cultivation. Ten shillings was voted the delegate to the Half-Yearly Meeting. The meeting closed till the 4th August, 1915. D. SMITH, Asst. Secretary

WARSOP (Trelawny.)—Monthly meeting held 7th July, 1915. Present: E. Arnett, Instructor, and Mr. Rennie, his assistant, the Secretary and 10 other members. Mr. Woodfin was asked to preside. Arising out of the minutes was the question of the possibility of sending a few dozen walking sticks for wounded soldiers at the front. It was agreed to prepare serviceable sticks for the purpose. Dealing with the sale of bananas, the Instructor here pointed out that the surplus fruit might be used in feeding pigs and fowls, which will eventually be exchanged for money. Meeting decided that, owing to the fact that infected animals are often slaughtered for food in these districts, the Parent Society be asked to take the necessary steps to put a stop to this unwholesome practice. At this stage, Mr. Rennie gave a very useful and interesting address on th rearing of poultry. He was given a hearty vote of thanks. It was also agreed that, owing to the dangerous state of the Parochial Roads of this district, a petition be sent to the Board requesting an early attention to the same. Meeting was brought to a close by the singing of the National Anthem.

U. K. WALTERS, Secretary.

GIDDY HALL (St. Elizabeth.)—A meeting was held on Wednesday, July 7th. Present: Rev. J. Maxwell, President; J. Briscoe, Esq., (Instructor) and 10 other members. The President read a letter of resignation from the Secretary. It was resolved to thank Mrs. Maxwell for her past valuable services and regret was expressed that she could not continue in office. Arising out of the Minutes, Mr. Walcott brought up, as a reminder, the subject of the Black River and taxation of boats. The officers for the ensuing year were then elected. Rev. J. Maxwell, President; O. E. Tomlinson, Esq., and Rev. J. W. Mornan, Vice-Presidents; Mr. James Laird, Treasurer; Mr. Chas. Stuart, Secretary. The Secretary read a letter from the Secretary of the Parent Society *re* Authorized Persons. It was stated that four men had been appointed but they had never received hand-cuffs. The Instructor moved that these Authorized Persons should return their badges as they have done nothing and with one exception, J. Briscoe, will not attend the meetings. Mr. Walcott seconded this, and it was unanimously carried. This branch is of the opinion that Praedial Larceny is on the increase in the District and would suggest that instead of Authorized Persons the Government should increase the number of District Constables and pay them for patrolling, for it is unreasonable to expect men to lose their time trying to catch the Praedial thief knowing that they will get no remuneration for their services unless they catch him, which is ten chances to one they wont. Mr. Shakespeare supported this by giving incidents of his 33 years experience as a Rural Headman, when he had to patrol and report regularly. The President said that he had done his best in trying to get the road through White Hall,

Hamstead, Green Valley to Mocho, and that it will be put through, but not till after the war. In the meantime the Superintendent of the P. W. D. will survey it as soon as possible. The Instructor then gave a valuable address on the proper planting and curing of corn, and advised the members to begin cutting and preparing lands at once for planting in September, and urged them to co-operate in selling their produce when they could command better prices. He appealed for walking sticks for the wounded soldiers, and the President kindly offered to send them up to Ipswich free of charge. All sticks are to be brought to the next meeting, which will be Friday, July 30th.

CHAS. L. STUART, Secretary.

SMITHVILLE (Clarendon).—The regular monthly meeting was held on the 9th July, 1915. There were present: Messrs. W. A. Bryan, President; S. A. Schleifer, Instructor, the Treasurer, the Secretary and twenty-two members, besides over forty visitors. The subject of corn-growing was discussed. The Instructor read portions from pages 206 and 207 of the June JOURNAL of Agriculture, bearing on the subject. He emphasized the proper drying of corn and referred to the stigma on our Jamaica Products, principally Cocoa and Coffee. It was suggested that the large proprietors should take the initiative step and put under cultivation 100 acres or more of corn and the small settlers would follow in their footsteps. Report of the authorized persons: A. B. Gayle reported arresting James Smith who was begged off by the owner of the stolen goods after he was taken before the Justice of the Peace. Daniel Stone reported that on the very rainy night of 19th June, he arrested Simeon Williams in the provision ground belonging to John Roberts, of Victoria. Williams had stolen more than a hamper of yams (5/- in value). On the 20th he took the prisoner to the Police Station at Frankfield, eight miles off and thence to the J.P. three miles further. To his surprise, the owner of the stolen goods asked the Justice of the Peace to pardon the offender. The Meeting thought that this "constant begging off" of praedial thieves tends to encourage them in their bad practices and should not be indulged in. The Law pertaining to the duties and power of the Authorized Persons as seen in the June JOURNAL was read by the Instructor. The matter of subscription to the Jamaica War Contingent Fund was next dealt with and several members promised to contribute. Twelve members also guaranteed walking sticks to be sent to convalescent wounded soldiers of Britain. At the next meeting Mr. Schliefer will lecture on coffee-growing.

J. A. EDWARDS, Secretary.

THE BECKFORD-BLACKWOOD BRANCH (Clarendon).—The meeting was held in Mt. Phillips Class House on Saturday, the 10th July, 1915. Present: T. D. Baillie, Esq., President; twelve members, including Assistant Secretary; also six visitors. The Instructor presided. He gave a brief and interesting address on "The Primary Object of the Agricultural Society," also the usefulness of the monthly JOURNALS. It was proposed that a free-will offering should be made for the help of the Jamaica Contingent, which should be given liberally by every individual. Mr. J. R. Thomas (teacher) was appointed Treasurer. Our next monthly meeting will come off on the 9th August, 1915, when all subscriptions will be looked for. Certain misconceptions that were in the minds of many of the members were eradicated through the lecture of the Instructor. The Authorized Persons were spoken to re their duty. The National Anthem was sung.

J. B. DAWKINS, Secretary.

SEEDS FOR PLANTING.

Selected Seed Corn, White and Red Guinea Corn, Cowpeas, Jerusalem Peas, Overlook Beans.

For preserving Corn from weevils—Naphthalene.

Fresh Vegetable seeds early in October.

Seed Potatoes (imported) end of October.

Books—Banana Growing in Jamaica, 3d. local postage free.

Hints on Poultry Keeping in Jamaica, 2d. local postage free.

The Journal

OF THE

Jamaica Agricultural Society.

The more people do the more they can do : he who does nothing renders himself incapable of doing anything : while we are executing one work we are preparing ourselves for undertaking another.

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SEPTEMBER, 1915.

No. 9.

BOARD OF MANAGEMENT.

The usual monthly Meeting of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 11 North Parade, Kingston, on Thursday, 19th August, 1915, at 11.40 a.m. Present: His Excellency Sir Wm. H. Manning, K.C.M.G., C.B. (presiding), Sir Jno. Pringle, K.C.M.G., Hons. P. C. Cork, C.M.G., L. J. Bertram, C.M.G., Dugald Campbell, Geo. McGrath and R. P. Simmonds; Messrs. R. Craig, A. W. Douet, A. C. L. Martin, E. W. Muirhead, Adam Roxburgh, Conrad Watson and the Secretary, Jno. Barclay.

The Hon. J. R. Williams wrote apologising for his absence owing to illness.

The Minutes of the previous Meeting having been printed and circulated were taken as read and confirmed.

The following matters arising out of the Minutes were considered:

(a)— *Number of Cases of Flogging for Praedial Larceny.*— The Secretary submitted the following letter from the C.S.O.:—

No. 9642-9122.

29th July, 1915.

"With reference to your letter No. 1187, dated the 19th ult., I am directed by the Governor to transmit to you copies of returns which have been furnished by the Inspector General of Police, showing the number of persons sentenced to be flogged in cases of praedial larceny for the year ended 31st March, 1915, and for the ten years 1905 to 1915."

(Sgd.) ROBT. JOHNSTONE,
Ag. Colonial Secretary

(For the Returns see pages 336 and 337).

(b) *Resolution re Sugar.*—The Secretary said it had been left to the Staple & Minor Products Committee, without further reference to the Board, to send on to the Government here, a resolution with regard to the sugar industry, to be forwarded to the Home Government. He had therefore forwarded the resolution together with a Memorandum that had been agreed upon, as follows:—

Resolution.—"Whereas the resources of His Majesty's West Indian possessions, and those of this Island of Jamaica in particular as regards the production of sugar, are capable of considerable development, and whereas such development is highly desirable, not only as increasing the prosperity and trade of His Majesty's West Indian possessions but also as rendering consumers in the Mother Country independent of sugar supplies derived from foreign sources.

"Be it resolved that His Majesty's Government be respectfully requested to give its earnest attention to the question of the encouragement of sugar production in this Island; and with this in view, and in order that the necessary capital may be attracted, that such preferential treatment be accorded to British produced sugar for a period of not less than 10 years as would suffice for the further development

of the existing sugar industry, as also for overcoming the initial difficulties to be encountered in establishing the industry in places where it does not at present exist, but where conditions point to the probability of successful continuance when such initial difficulties shall have been overcome."

Memorandum.—"In submitting this resolution and in order to meet the criticisms that may arise as to our asking the Imperial Government to do what may seem financially impossible in view of the necessity for largely increased British revenue as the result of the present war, the committee would urge that at present the amount of British grown sugar imported into Great Britain is small and could not be large for a number of years. That Canada, a growing market for sugar, would be obliged to grant at least the equivalent of any British preferential treatment in order to secure her sugar supplies, failing which she would have to become a buyer in either the Continental market or else the Cuban market, in either case raising the selling price in these markets and thereby affecting the general world price. That the great advantages to British trade in the export of machinery, clothing for the increased sugar growing population, would probably in the earlier years of such preferential treatment more than recoup any revenue losses from the preferential treatment of the comparatively small amount of British grown sugar entering Great Britain at this time: That connections formed in the first place with British capitalists and manufacturers in the development of the sugar industry are likely to remain with them, and the benefit of these would extend far beyond the period of their term of preference now asked for."

The Chairman said he had sent the resolution to the West India Committee instead of the Secretary of State for the Colonies, and in doing so, he said, that from the letter which had come from the West India Committee he was not quite sure whether it was intended that the resolution should go direct to the Secretary of State or whether it should be sent to the West India Committee, because in the latter's letter he (the Governor) thought they deprecated the idea in view of the present situation in the Mother Country whether the resolution should be sent now direct to the Secretary of State. He had, however, pointed out to the West India Committee that if they desired him to send the report direct to the Secretary of State for the Colonies they should inform him and he would do so.

(c) *Foot and Mouth Disease in U.S.A.*—The Secretary said that at the previous Meeting of the Board he had submitted a letter from Messrs. H. M. Brandon & Co., Grain Merchants, Kingston, stating that although the prohibition against the importation of American hay was still in force here, large quantities of this article were being exported to the United Kingdom on certificate declaring the place of origin to be free from Foot & Mouth Disease, and asking whether the restrictions might be withdrawn here; also the Colonial Secretary's reply to that letter which stated that the Government were making enquiry of the British Ambassador at Washington as to the exact position. He now submitted a letter he had received from the C.S.O. as follows:—

No. 10091-11468.

9th August, 1915.

"With reference to previous correspondence ending with the letter from this office, No. 8740-7342, dated the 10th ultimo, I am directed by the Governor to inform you that His Excellency has just been informed by His Majesty's Ambassador at Washington that another outbreak of foot and mouth disease has occurred at Hornell, New York, U.S.A., where 14 out of a herd of 20 were infected. It is stated that an investigation is being made, that every precaution is being taken, and that the infected animals have been destroyed."

(Sgd.) G. M. WORTLEY,
Ag. Asst. Colonial Secretary.

The Board considered that it would not be prudent to remove the restrictions at present.

(d) *Registration of Stallions*.—The following letter from the C.S.O. was submitted:—

No. 10106-10903.

10th August, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter, No. 55, dated the 22nd ultimo, intimating that the Board of Management of your Society has been informed by the Honourable J. V. Calder, that he, as Chairman of the Select Committee of the Legislative Council appointed to consider the report of the Live Stock Committee of the Society, on the subject of the Entire Horses Law, and the Registration of Stallions and Asses used for serving mares, has been unable to get a meeting of the committee, owing to the death of the Hon. J. M. Farquharson, and the absence from the Island of Colonel E. A. Moulton-Barrett, and suggesting that new members be appointed to the committee in place of these gentlemen.

"I am to inform you in reply that only the Legislative Council can appoint new members to the committee, and that Mr. Calder was informed on the 8th of February last that His Excellency would have no objection to his moving for such appointments at the next session of the Council."

(Sgd.) ROBT. JOHNSTONE,

Ag. Colonial Secretary.

(e) *Pod Rot and Canker of Cocoa*.—The following letter from the C.S.O. was submitted:—

No. 9595-10737.

28th July, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter, No. 48, dated the 19th instant, relative to the question of adding pod rot and canker of cocoa to the list of infectious plant diseases, under Law 3 of 1915.

2. "I am to inform you, in reply, that His Excellency accepts the advice as expressed at the meeting of the Board of Management of the Jamaica Agricultural Society on the 14th July, and does not therefore propose to declare the diseases referred to, to be infectious diseases under Law 3 of 1915."

(Sgd.) ROBT. JOHNSTONE,

Acting Colonial Secretary.

War Gifts—Further Acknowledgments.—The Secretary submitted the following letters from the C.S.O.:—

No. 9366-10728.

23rd July, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter, No. 47, dated the 20th instant, enclosing Bill of Lading for two hundred and eleven packages of fruit, preserves, clothing, and cigarettes, representing a further War Gift from the members of the Jamaica Agricultural Society which you had shipped to the address of the Crown Agents for the Colonies on the s.s. "Camita" on the 19th instant.

2. "His Excellency desires that an expression of his appreciation of this further kind and thoughtful action may be conveyed to the donors."

(Sgd.) ROBT. JOHNSTONE,

Actg. Colonial Secretary.

No. 9985-11389.

6th August, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter, No. 68, dated the 3rd inst., enclosing bill of lading for 60 packages containing oranges, grapefruit, banana figs, and sundry gifts for individual soldiers, and lime juice, representing further war gifts from members of the Jamaica Agricultural Society which you had shipped to the address of the Crown Agents for the Colonies, on the s.s. "Coronado" which left Jamaica on the 2nd instant.

2. "His Excellency desires that an expression of thanks for these further generous gifts may be conveyed to the donors.

3. "I am to add that the Governor has written to the Secretary of State for the Colonies asking that the gift of banana figs may be brought specially to the notice of the War Office, and Admiralty, and that, if possible, the opinion of the men's appreciation of these figs might be obtained."

(Sgd.) ROBT. JOHNSTONE,

Acting Colonial Secretary.

The Secretary said he had published in the newspapers of 9th August some of the acknowledgments of fruit from the various Hospitals in the United Kingdom which showed how greatly the gifts had been appreciated. The Secretary of the West India Committee London, had advised him that the fruit ex s.s. "Coronado" had been

sent to the Grand Fleet, Grapefruit being particularly appreciated by the sailors. Mr. Aspinall also enclosed a letter of thanks to the Society from Lieut. E. Hilton Young written on behalf of Admiral Sir Jno. Jellicoe, as follows:—

H.M.S. "Iron Duke,"
C/O. G.P.O., London,
4.7.15.

"I am directed by Admiral Sir John Jellicoe, Commander in Chief, Grand Fleet, to thank you most sincerely, on behalf of the officers and men under his command, for the very acceptable present of fruit and preserves, from the members of the Jamaica Agricultural Society.

The fruit which arrived quite safely, has been distributed amongst the ships of the Fleet, and has been much appreciated.

I am to say that the Ships' Companies are most grateful to the members of the Society for their kind thought; and that it is a particular pleasure to them to receive this token of remembrance from their fellow countrymen over-seas."

(Sgd.) E. HILTON YOUNG, Lt.

The Secretary stated he was trying to keep up regular shipments every fortnight.

Resignation of Mr. Spooner.—The Secretary read the following letter he had received from Mr. Spooner:—

July 24th, 1915.

"I much regret to have to ask you to place my resignation as a member of the Board of Management before the Board.

I have accepted the management of Bendals Central Sugar Factory, Antigua, and expect to leave Jamaica on August 9th.

Please convey to the members of the Board of Management my very best wishes for a successful continuance of the excellent work that the Jamaica Agricultural Society has done, and permit me to assure you that any information I may have or be able to collect, will always be at the service of the Society."

(Sgd.) ARCHD. SPOONER.

The Board expressed their regret at losing Mr. Spooner's valuable services. Mr. Craig moved that Mr. A. W. Farquharson be called to the Board in place of Mr. Spooner. Mr. Farquharson was largely interested in the sugar industry and he would represent that body on the Board.

Sir Jno. Pringle seconded and the motion was carried unanimously.

Cotton-Growing.—The Secretary submitted a copy of a Circular from the British Cotton Growing Association, explaining how the guarantee from the Fine Spinners' Association to take all the crop sown in 1915 at a fixed price, under certain conditions, would work.

The Secretary said that unfortunately there would not be much planting of Sea Island Cotton this year, as in the particular districts where it had been nearly all grown (Vere), owing to the high price of sugar and the fine seasons, everyone was putting in sugar for all he was worth. These were the best seasons they had had since 1906 and it was a pity that they could not be taken advantage of for planting cotton. Sugar at present, however, was of course more certain.

Mr. Watson said in connection with the cotton industry, he desired to submit a Memorandum correcting some misstatements made in the Annual Report of the Director of Agriculture. (This is published on page 338 of this JOURNAL).

Matters referred from General Meeting.—The Secretary said some matters in connection with the cocoa industry had been left over from the Half-Yearly General Meeting to be dealt with by the Board. These were:—

(a) More efficient means and methods of inspection of Produce Buyers Books.

(b) Permits to sellers of Cocoa.

(c) Severer punishment for breaches of the Produce Protection Law.

There were resolutions from Branch Societies on all these subjects: he thought that they had all been dealt with in the Report of the Special Committee appointed by the Society to consider the Produce Protection Law, which had been sent to the Government.

The President said the amendments to the Produce Protection Law already suggested by the Society were not likely to be dealt with by the Legislative Council until after the War. Consideration of the whole matter had been held over from the last Meeting of the Legislative Council, and would not likely be dealt with at the next session of the Council. If there were any fresh points the Society had to bring forward, they could send them on to the Government, and at the proper time the whole matter could be threshed out in the Legislative Council.

It was agreed that meantime the resolutions from the Branch Societies should be referred to the Special Committee which had already dealt with the subject.

Applications for Affiliation.—Application for affiliation from Wallingford near Guy's Hill was again submitted and held over for further enquiry as members familiar with the district stated that it was too near the already existing Branches of Guy's Hill, Mt. Angus and Lucky Hill. The Secretary said he had enquired of the Guy's Hill Branch whether this proposed new Branch Society would interfere with their operations, and they had replied that it would not, but he had not enquired of the Mt. Angus and Lucky Hill Branches.

The matter of affiliation was deferred until the Secretary enquired of these Branches.

Instructors.—The Reports of the Instructors for the month of July and their Itineraries were submitted and directed to be circulated to the Instructors Committee as usual.

The Secretary said that immediately after the storm, he had written the various Instructors informing them that as their proposed Itineraries would be interrupted at any rate, they should go through as much of their districts as possible and send in as specific a report as they could on the damage done.

The Chairman said that he was probably expected to make a statement as regard storm damages. He would do so.

(The remarks of the Governor are published on page 340 of this JOURNAL.)

Statement of Accounts was submitted and tabled.

New Members.—The following new members were elected:—

E. O. Anderson, Lionel Town, Alley.

W. G. Twiney, 5 North St., Kingston

The Meeting adjourned until Thursday, the 16th September 1915, at 11.40 a.m.

RETURN SHOWING THE NUMBER OF PERSONS SENTENCED TO BE FLOGGED IN CASES OF PRAEDIAL LARCENY FOR YEAR ENDED
31ST. MARCH, 1916.

Parish.	First Juvenile Offenders.	2nd.	3rd.	4th.	5th.	6th.	7th.	
Kingston	—	—	—	—	—	—	—	Of the 20, one was an
St. Andrew	4	—	—	—	—	—	—	adult. Eleven of this nu-
St. Thomas	6	—	—	—	—	—	—	number, juveniles, had
Portland	8	—	—	—	—	—	—	been flogged previously on
St. Mary	4	—	—	—	—	—	—	first conviction.
St. Ann	20	8	—	—	—	—	—	Of the remaining six,
Trelawny	27	2	1	1	—	—	—	three were adults and three
St. James	23	—	—	—	—	—	—	juveniles. One of the Ju-
Hanover	8	—	—	1	—	1	1	veniles had been flogged
Westmoreland	7	1	—	—	—	—	—	previously. One of the
St. Elizabeth	13	2	—	—	—	—	—	adults had been flogged
Manchester	15	5	1	—	—	—	—	previously three times and
Clarendon	30	1	—	—	—	—	—	another once.
St. Catherine	—	—	—	—	—	—	—	
Total	165	20	2	2	—	1	1	

A. E. KERSHAW, Lieut.-Col., Inspector General of Police.

RETURN SHEWING THE NUMBER OF PERSONS SENTENCED TO BE FLOGGED FOR PRAEDIAL LARCENY DURING THE TEN YEARS ENDED
31st. MARCH, 1915.

	Convictions.										Total.
	First Juvenile Offenders.	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.	9th.	10th.	
1905-1906	132	24	13	14	3	—	—	—	—	—	186
1906-1907	83	30	24	9	1	—	—	—	—	—	147
1907-1908	190	60	25	21	4	1	1	—	—	—	302
1908-1909	190	51	34	16	2	5	4	—	—	—	302
1909-1910	91	12	6	6	1	2	—	—	—	—	118
1910-1911	117	21	7	2	2	1	—	—	—	—	150
1911-1912	116	7	5	1	1	—	—	—	—	—	130
1912-1913	195	12	4	—	—	—	—	—	—	—	211
1913-1914	220	17	7	—	1	—	—	—	—	—	245
1914-1915	165	20	2	2	—	1	1	—	—	—	191
Total	1499	254	127	71	15	10	6	—	—	—	1982

COTTON.

The following memorandum *re* the position of the cotton industry was submitted by Mr. Conrad Watson at the Meeting of the Board of Management of this Society held on Thursday, the 19th inst.

The statement once made by the Director of Agriculture that the Sea Island Cotton Industry is in reality of very remote interest to the general agriculture of the Island, is probably correct, but in the last Report of the Department of Agriculture considerable space is devoted to efforts to justify this judgment of 1909.

The depressed state of the Cotton market has not affected the Sea Island variety as much as is inferred, for the British Cotton Growing Association has guaranteed a minimum price of 1/2 per lb. for good Sea Island Cotton for the coming crop; it does, however, appear to have affected the sale of Cauto Cotton for there is no demand for it to-day, and the 1,000 acres to be grown by the Cauto Cotton Company, which was to be of such inestimable benefit to the Island, has not exceeded 50 acres.

There are no grounds for the statement that the 1914 crop of Sea Island Cotton was a commercial failure, as the peasantry sold all good seed Cotton locally at 3d. per lb., and the lint was sold in Liverpool from 1/- to 1/3 per lb.

The impression that the crop was a failure is probably due to small export returns the greater portion of the crop having been burned in the warehouse in Jamaica.

The cultivation of inferior types of Cotton should not be encouraged; there is a tendency towards the use of better and better Cotton and efforts are continually being made to improve varieties; this ought to be sufficient reason for not cultivating the type grown by the Arawaks.

In 1902 an extraordinary yield at the rate of 380 lbs. per acre of lint of Sea Island Cotton was obtained at Hope, present value largely a yield of 900 lbs. of seed Cauto Cotton equal to 324 lbs. lint, present value £10.16s. 0d. was obtained from ratoons, showing a difference of £11 7s. 4d. in favour of Sea Island Cotton, but no correct conclusions can be drawn from such isolated experiments.

The late plants and the late ratoons of the Cauto Cotton failed to give a crop owing to the rotting of the bolls; such a failure in a perennial is significant—it will probably happen again with the same plants, and if the plants only last say 5 years, and if 1 or 2 crops be lost, the average for 5-years will be considerably reduced.

It is reported that 50 bales of Cauto Cotton have been reaped from a cultivation on the limestone formation, but a bale might be any weight from 200 to 500 lbs., therefore the yield cannot be compared with that of Sea Island Cotton which has also given large returns, when grown on the same type of soil. It must also be remembered that the value of 500 lbs. of Sea Island Cotton is equal to that of 1,000 lbs. of Cauto Cotton.

When Cauto Cotton was introduced, its chief recommendation was, that it was hardy and immune to pests, but it is now admitted that the plants are subject to boll rot and are attacked by Black scale, Snow Scale, Leaf Blister Mite, Cotton stainers and caterpillars; the plant being a perennial will have to be treated for such pests, and the cost of doing so will exceed the cost of planting annually.

The failure of the Cotton Company in 1905 which is always used as an argument against Sea Island Cotton appears to have been principally due to ignorance of the proper methods of controlling the caterpillars.

In the Bulletin of the Department of Agriculture for September, 1905, the Manager of the Company wrote:—"The cotton worm is a serious matter and information is badly required as to best mode of treatment."

In the same Bulletin, the present Director of Agriculture advises that intervals be left in the fields to allow of a spraying machine drawn by a mule being used.

The planters and their advisers attributed the failure to every possible cause except their lack of experience.

The Report states that the Vere Estate Coy. was planning to plant 1,000 acres of Sea Island Cotton in 1906; exactly the same plans seem to have been made by the Cauto Cotton Company in 1914 with the same results.

With respect to the destruction of the cotton crop of St. Catherine by rain in 1906, no crop should have been there at that time of the year to be destroyed.

The acreage of Sea Island Cotton for several years has been published to prove the failure of the Industry. If, however, the export values for the corresponding period had also been published the opposite impression would be produced.

1910 62 acres, export value £868; value per acre, £14 0s. 0d.

1911, 60 acres, export value £1,178; value per acre £19 12s. 8d.

1912, 109 acres, export value £2,727; value per acre, £25 0s. d.

The figures given show that the average value of exports for the 3 years was £19 11s. 9d. per acre, a very high return; but there were about 200 acres under cultivation in 1912 instead of 109 acres as stated in Report.

The export values are no doubt correct, but it would be quite as misleading to accept such values as the returns from the small acreage given, as to accept as correct the acreage published in the Report.

Figures stop at 1912, and 1914 is previously stated to have been a commercial failure; the result of 1913 is omitted, but the following may be found in the Supplement of the *Jamaica Gazette*, 25th June, 1914:—"Owing to favourable seasons in 1912 the exports of Sea Island Cotton in 1913 rose to the value of £4,000."

The annual increase of exports of Sea Island Cotton from 13,388 lbs. of Cotton in 1910 to 69,296 lbs. in 1913, proves that with a little encouragement from the Department of Agriculture a stable industry could be established.

Since the above paper was read, I have reason to think that the average under Sea Island Cotton in 1912 was over 250 acres.—C. W.

* * * * *

The following is the return of the exports of Sea Island Cotton from 1910 to 1914:—

1910	13,323 lbs.	£368 9 0
1911	17,855 "	1,178 6 6
1912	36,229 "	2,727 19 2
1913	69,296 "	4,128 2 6
1914	32,235 "	1,575 12 8

The crop of 1914 was very much larger than the figures show, but all Mr. Eric Anderson's cotton, grown by himself and purchased, was burned in his store.

STORM.

The following is the substance of the Governor's remarks at the meeting of the Board of Management on Thursday, 19th August, as referred to in the minutes:—

The President said perhaps he might be expected to say something on this occasion with regard to the recent storm. He had intended to defer making a statement until he had got further information, but he would just make a few remarks now. Information had no doubt been in the possession of all the members of the Board of Management, of the fact that in most of the parishes, between 80 and 90 per cent. of the bananas were stated to be down. There were certain small areas, however, where the loss was not so great, but they might take it that in the majority of places in the island the loss of the present banana crop was between 80 and 90 per cent. As regards coconuts the loss that had been sustained would not be more than one per cent. As regards cocoa he understood that very little damage had been done, and that damage was principally due to banana trees being blown down on the cocoa trees. With respect to root crops—yams, etc.—he understood that in some districts there had been considerable damage, and this was due to the poles being blown down. But this had not been general. In other districts he had been informed that root crops had not suffered to any great extent. With regard to buildings, with the exception of a few cases, hardly any damage had been done. As he had pointed out, there were a few exceptions, but the damage done to buildings by the storm last week was nothing compared with that caused by the last two hurricanes—the one in 1903 and the other in 1912. As regards the sea coast, from Manchioneal right around to Falmouth, very serious damage had been done. In Manchioneal, the storm had damaged the United Fruit Company's wharf, and the damage was principally confined to smaller buildings—eight in number. In Port Antonio a certain amount of damage had also been done to smaller houses, but no great damage to larger buildings. When they left Port Antonio around the sea coast to Annotto Bay, they found that a number of larger houses had been destroyed, in addition to many smaller buildings, as also the wharf premises. In the smaller towns, such as Hope Bay, St. Margaret's Bay, there had been considerable damage done, to smaller houses. Some of the houses had been lifted from their foundation by the sea. The damage at Buff Bay was more than what it had been in either St. Margaret's Bay or Hope Bay. At the latter place the damage was not only to smaller houses but also to larger ones. In some cases the larger houses had been lifted by the sea right across the road, and those along the sea coast were carried away. There was also much damage to the wharves at Buff Bay. At Annotto Bay considerable damage had also been done. The United Fruit Company's wharf was also damaged and several of the smaller houses. Some of them were lifted from their foundation and carried inland. In Port Maria there was much damage along the sea coast. All the wharves were destroyed and the incoming of the sea had done damage to a number of houses. The damage, generally, was considerable. Further along the coast, embracing Oracabessa and Ocho Rios considerable damage had also been done. At St. Ann's Bay the wharves and wharf houses were damaged, and from this point right on to Falmouth much damage was done. The houses built on the sea coasts were either destroyed or lifted up and carried some distance from their original position. In Trelawny, principally Falmouth, much damage had also been occasioned to wharves and wharf houses. At Montego Bay except for some slight damage to the United Fruit Company's wharf, and the Government Pier, the damage was comparatively small. With regard to the roads, the most serious damage done was in respect to those roads along the sea coast. Starting from Port Antonio right along the roads along the sea coast had been swept away, and this was the case right around the coast to a point beyond Falmouth. The Public Works Department had been busy making a track for

buggies to go over, but he was afraid that it would be some time before motor traffic could go over the roads, but it was hoped to get communication as soon as possible. The Public Works Department were doing all they could and he was able on Monday evening to drive from Port Antonio into Buff Bay. Some parts of the road from Buff Bay to Annotto Bay had been washed away, but it was being put in order, and it would soon be completed as a matter of fact, within the next few days. A great deal of damage to the road had been due to an enormous quantity of sand washing over. Gangs of labourers were put on the roads to have them cleared. The sand on the roads was such that he saw lots of banana carts drawn by mules and cattle experiencing the greatest difficulty in getting through.

With regard to the railway, the track outside of Buff Bay, for about 200 yards had been completely destroyed, and it would take a month, and possibly six weeks before the line could be put in order. Beyond that, except in one place, the damage had merely been done to the earth work. The Director of the Railway was already at work in trying to restore communication between Buff Bay and Port Antonio, but it would take at least six weeks, and probably two months before there would be a restitution of the lines.

In reply to a question put to him, the Governor went on to state that corn had been badly damaged in certain places. He did not know if members of the Board of Management had any further information beyond what he had given.

Mr. Robert Craig said the members of the Board of Management thanked His Excellency for the general statement he had made. The statement which the Governor had made would have the effect of putting down the gossip that His Excellency did not intend to take any steps to repair the roads.

Sir John Pringle said in Annotto Bay the streets were all cleared, and the roads were also being cleared. The authorities were working hard to put things in order. The wind had blown the sea sand into a swamp and nearly filled it up; a little more filling and in place of what was a swamp there would be land suitable for planting coconuts.

Mr. Roxburgh said one cheerful feature was that the spring suckers had not been blown down—at least that was the case in his parish. With careful cultivation they would have a spring crop, although it would not be until April or May.

The President said he was glad that Mr. Roxburgh had brought forward the point in view of the reports that had been afloat. He understood that this hurricane had done much less damage to bananas than the hurricane in 1903. In 1903 the banana trees were uprooted, but the storm last week had blown down the trees and what was known as the followers—he had learnt something about bananas since he had been here—were still up; and that in April or May there would be fruit in most districts.

Mr. Roxburgh said, of course, the suckers were shaken and the fruit next year might not be of as good quality as in past years, but still they would have fruit to sell.

Mr. Dugald Campbell said in Lower St. Catherine the young plants in his opinion, were very little damaged, and the fruit would come in in good time next year, as also the ratoons. If the damage was confined to cocoa they would not have suffered very much.

The President said there was no doubt about it, they were fortunate, because the accounts which had come to hand from Galveston stated that the hurricane in that city as well as other parts of America was the worst that had been experienced there, so that after all we had been fortunate here. If the centre of the storm had been 40 miles further south, the island would certainly have been worse off. The best thing to do now was to put on a bright face and get out of the trouble as well as they possibly could.

SOME NOTES ON BORDEAUX AND BURGUNDY MIXTURES.

(By S. F. Ashby, B.Sc., Microbiologist, Department of Agriculture.)

These mixtures are now being used by many planters and agricultural instructors for spraying cocoa against podrot and canker and coconuts against diseases of the leaf and bud. To get satisfactory results the spray must be fine and of uniform strength; both mixtures are solids suspended in water which settle out completely when allowed to stand. The longer the solid can keep suspended the more uniform in strength will be the mixture applied to the trees.

The Microbiologist has recently tested the rate at which mixtures prepared from commercial powders settle as compared with home made mixtures. Three ready-made powders have been tested:—

1. *Burgundy Powder*.—This is a coarse-grained gritty green powder prepared by the makers of the Holder pneumatic sprayers and being sold in the island by the local agent of the firm. Several planters have used this preparation in their Holder machines for spraying against podrot and canker of cocoa. Analysis shows the powder to be a mechanical mixture of crystallized sulphate of copper (pure bluestone) 53 per cent. and carbonate and bicarbonate of soda 47 per cent.

When a small bulk of water is added the mixture effervesces, due to escape of carbonic acid gas and the liquid becomes finally slightly alkaline. The proportion of copper present is satisfactory and about 9-10 pounds mixed with 50 gallons of water would be as strong as a normal bordeaux mixture.

Fungi Bordo.—This is a bordeaux powder prepared by the Sherwin Williams Co. of Cleveland; a sample was supplied by the local agents for trial. It is a very fine dry almost white powder guaranteed to contain 11 per cent. copper equal to about 44 per cent. crystallised sulphate of copper. Analysis showed it to contain rather more, equal to 47 per cent sulphate. It was free from moisture and lost weight (6 per cent.) only at a low red heat. When a small bulk of water was added it warmed up and turned blue and became rather gritty and strongly alkaline.

It is very probably a mechanical mixture of calcined (water free) sulphate of copper and ground quicklime. It would, therefore, absorb moisture very greedily from the air and spoil rather rapidly unless kept very securely sealed.

About 10 pounds are required to give 50 gallons of a normal bordeaux mixture.

3. *Caescu (K.S.O.)*.—This fine pale blue powder is claimed by the makers (Hemingway and Co.) to be a combined fungicide and insecticide. The chemical composition given by the makers is:—

Copper hydrate	12 per cent.
Arsenic oxide	34 " "
Hydrate of lime	45 " "
Iron oxide silica, etc.	9 " "

Analysis showed that an equivalent of 12 per cent. copper hydrate was present. It is doubtful if the copper was really present as hydrate and not merely a mechanical mixture of bluestone and slaked lime. About 60 per cent. of the powder consisted of arsenate of lime, a recently introduced substitute for arsenate of lead; it is cheaper than

the latter and contains nearly double the amount of arsenic so that less can be used. The arsenate is applied to plants either as a spray or in powder and serves the same purpose as paris green—to poison biting insects like caterpillars and beetles. The makers advise the use of Caascu at the rate $2\frac{1}{2}$ pounds in 50 gallons. This proportion is satisfactory for applying the arsenate against insects but would not contain enough bordeaux to be of use against fungus; as a fact such a mixture is only 1-7th the strength of a normal bordeaux spray. To apply enough of the latter over 14 pounds in 50 gallons would be required causing great expense and waste of arsenate. Caascu is, therefore, not suited for use as a combined insecticide and fungicide; it would be effective only as an insecticide (against certain insects and not against piercing and sucking insects like thrips on cocoa); the price however, is high (19 cents a pound for 5 pound cans); as it is, however, only a 60 per cent arsenate of lime, the cost is equivalent to 31 cents for the pure substance which can be bought from another source for $15\frac{1}{2}$ cents a pound in 5 pound packages or at just half the price. The home made bordeaux mixture was prepared by dissolving 5 pounds of sulphate of copper (pure bluestone) in 25 gallons water and pouring into it 25 gallons of limewash made up with 3 pounds of quicklime (stonelime).

The home made burgundy mixture was prepared by dissolving 5 pounds of sulphate of copper in 40 gallons of water and pouring into it 10 gallons of water in which $6\frac{1}{4}$ pounds of washing soda had been dissolved. The mixtures were compared by noting the rate of deposit in glass cylinders of a column 12 inches high. The mixtures required the undermentioned times to settle 10 inches:—

Burgundy mixture (Holder)	5 minutes
Fungi Bordo	10 "
Caascu	7 "
Home made Burgundy mixture	300 "
Home made Bordeaux mixture	150 "

The three factory powders settled out very rapidly while the home made mixture held up very well indeed.

The mixtures were then tested in a Holder pneumatic knapsack spray tank of $4\frac{1}{2}$ gallons nominal and $3\frac{1}{2}$ gallons working capacity. Three gallons of liquid were brought into the tank and the air pressure raised to 75 pounds (3 minutes pumping).

Each successive quart of spray (12 in all) from the bordeaux nozzle was collected separately and sampled. At the start one quart was ejected in one minute: as the pressure fell the time lengthened so that the last quart required $1\frac{1}{2}$ minutes at a pressure of 20-25 pounds. About 16 minutes were needed to empty the tank, the pressure falling from 75 to 20 pounds.

The force of the spray therefore gradually weakened. This reduction of force is the main defect of the pneumatic tanks; it is also evident that it requires half as long again to spray on the last half gallon, as the first half gallon. In actual work this should be remembered and the foliage covered more slowly with the nozzle held nearer as the tank empties. In order to imitate ordinary conditions the tank after being shaken up was carried about on a man's back while the quart samples were collected. The amount of copper in suspension was determined in the samples of burgundy (Holder Fungi Bordo, home made burgundy and bordeaux. With both the

home made mixtures the amount of copper suspended in the first and last quarts were identical proving that no appreciable deposit had occurred during the 16 minutes the tank was emptying. The home made mixtures can be sprayed, therefore, of perfectly uniform strength from a Holder Knapsack tank. The first quart of the spray from a mixture made with *burgundy powder* (Holder) contained 1-3 of the amount of copper originally mixed up with 3 gallons (12 quarts); the amount in the other 11 quarts was fairly uniform but only 2-3 of the proper strength. Owing therefore, to the rapid settling of a part of the mixture 12-15 pounds in 50 gallons are required instead of 8-10 pounds. The first $\frac{1}{2}$ gallon of the *Fungi Bordo mixture* contained twice as much copper as each succeeding half gallon, hence the strength of the spray was only uniform in the last $2\frac{1}{2}$ gallons, the first half gallon being of double the proper strength.

The Caascu mixture was more uniform in strength throughout but even there the first quart contained 25 per cent more arsenate than the succeeding quarts. An arsenate of lead powder was also tested in the proportion of 2 pounds in 50 gallons. It settled very rapidly in the glass cylinders but when sprayed from the tank the strength was very uniform in every pint except the first which held 70 per cent more arsenate in suspension than in each of the succeeding 23 pints.

The reader will note that the spray ejected from the tank is more uniform in strength than one would infer from the experiments with the glass cylinders. This is evidently due to the air, escaping from the liquid as the pressure falls, keeping the suspended matter in movement. The escaping air therefore acts as an agitator. When the tank is being filled the hose bearing the spraying arm should be held or tied up after turning off the cock; if the hose lies on the ground during filling and closing, a part of the mixture will settle into it and will remain in when the tank is shaken up. As a consequence the first pint of burgundy (Holder) Fungi Bordo or Caascu will contain even more solid matter than was found in the experiments. *Home made* bordeaux and burgundy settle so slowly that no precautions are required. When arsenate of lead is mixed with home made bordeaux or burgundy it keeps up much longer than in water alone.

Conclusions.—The ready made powders intended to replace home made bordeaux or burgundy mixtures are prepared on the wrong principles being merely mechanical mixtures of the ingredients and not the finished product of their mutual action. The great advantage of a finely suspended solid which can be secured only by mixing weak solutions is lost and a coarse rapidly settling mixture results. The home made mixtures are formed by bringing two weak solutions together and the result is therefore, most satisfactory. The home made mixtures cost less than the proprietary articles but are slightly more troublesome to prepare.

Caascu cannot be regarded seriously as a fungicide owing to the small proportion of copper. As an insecticide against caterpillars and beetles on cotton, coconuts, etc., it could replace paris green or arsenate of lead but its price is double the quotation for pure arsenate of lime. A test in which sprayed foliage was exposed to two heavy showers ($1\frac{1}{2}$ in. and $\frac{1}{2}$ inch) within a day showed that it adhered well. Any attempt to use this mixture for spraying cocoa against podrot and thrips will result in failure (at $2\frac{1}{2}$ pounds to 50 gallons)

as it is too weak to control the fungus and the arsenate is useless against a piercing and sucking insect like thrips which must be attacked by a contact spray (an oil emulsion, quassia and soft soap, or nicotine).

The formula for home made bordeaux is:—

5 pounds pure bluestone	25 gallons water
3 pounds quicklime	25 gallons water.

pour limewash into bluestone solution. For a lesser quantity:—

1 pound bluestone	5 gallons water
10 ounces quicklime	5 gallons water

The quicklime should be recently burnt powder or stone lime; the Bristol marble lime imported by the sugar estates for tempering the juice is also well suited. The formula for home made burgundy is:—

5 pounds pure bluestone	40 gallons water
6¼ pounds washing soda	10 gallons water

pour washing soda solution into the bluestone. For a lesser quantity:—

1 pound bluestone	9 gallons water
1¼ pound washing soda	1 gallon.

Mix as before. A burgundy prepared in that way settles out very slowly (a mixture 17 inches deep in the spray tank requires 8½ hours to settle out, while the tank is emptied under 20 minutes during spraying.)

Burgundy is a convenient substitute for bordeaux when good recently burnt lime cannot be had, since washing soda is of uniform strength, cheap, and easily obtained. The compound formed (carbonate of copper) is greenish whereas bordeaux is sky blue. Burgundy dries on green and is therefore invisible which makes it difficult to judge if the spray has been well spread. This point is an advantage for spraying fruit trees, vines or ornamental plants in gardens. Burgundy does not resist rain so well as bordeaux and is not quite so active as a fungicide.

The chemical analyses are by Mr. R. Simmons, F.I.C., Deputy Island Chemist.

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CORN—KEEPING AND STORING.

When we have used the term *keeping* corn before, we have used the same word in two senses, viz: the keeping free from damage by weevils and other insect pests, and also the keeping it over from month to month in a store, that is, storing it. In future, however, we shall use the word keeping in the first sense; that is keeping safe from weevils, etc. A great deal of discussion has taken place on the subject of corn, and it was one of the most interesting subjects at the two last Half yearly Meetings. We do not think the trouble however, is so much in keeping the corn good, as that is only a matter of everybody learning how to do it, and to enable this to be done we have placed Naphthalene at the disposal of corn growers who only store small quantities, while from the Government Laboratory Bi-Sulphide of Carbon can be got for those who store large quantities. Bi-Sulphide of Carbon is not suitable for small settlers to use: it cannot be got in small quantities. Naphthalene is easy to get in any quantity and to use. The trouble is in storing the corn; very few small settlers have store rooms at all, and even large planters have not store rooms suitable for corn—that is, where the grain can be treated with Bi-Sulphide of Carbon. A good many who talk about Merchants in Kingston and the Public

Works Department buying up large quantities of corn do not quite understand the position. In the United States where there is such a very large production of corn, this crop has always been one of the chief products of the farmers, one of the biggest items of foreign trade; almost every farmer who grows corn is well equipped for this business: he has cribs to keep over the crop in the cob, to be shelled when needed. The merchants who deal in corn are also well equipped to hold it. In every town in the corn growing districts there are stores specially built for corn, in the larger towns where it is collected in large quantities, there are tremendous stores for keeping corn for a year if necessary. All that the Merchant in Kingston have to do is to send an order to their Agents in New York, and they can get down a hundred, five hundred or a thousand bags by every steamer, so that here they need not store away large quantities; the store rooms are on the other side of the ocean. So that while it looks very simple that only native corn should be used here it is not quite so simple when it comes to storing large quantities.

We imported last year 238,285 bushels, and we raised probably an equal quantity here. Our total requirements are probably over 500,000 bushels on an average. We would not, however, require to store our crops as long as in the North as we have a crop half yearly, but we would require to have a storage rooms fitted for corn somewhere to hold over 100,000 bushels just after the crop came in and to hold part of that quantity for from 6 to 7 months for gradual distribution. Of course, this does not mean one store, but perhaps many.

If the merchants in Kingston and the Public Works Department could have an absolute guarantee that the corn would be properly cured and that the quantity would be sure, suitable stores would no doubt be made. It has been suggested that the Government should, move in this way first, but probably the Government would say it is better to leave such matters to private individuals.

There are patent tanks stores made in the United States which are not too expensive, and which have cheap driers in connection with them which could be used and possibly these could be made here. The drying of corn would never give very much trouble if the corn was first properly fit and well cured in the field; no patent driers in the world can make good corn if the grains in the first place, are not good; they cannot be good if the corn is taken in before properly fit. First, we have to get grain of good quality; that has been improving within the last few years, and is now generally fairly good; secondly, we have to get grain properly ripe and full and dry in the field, otherwise it will not stand transportation, but sweat and go mouldy on the way. Then we have to get large enough quantities assured in every district. We should have to get reliable estimates of the crop, if the price to be paid is to be fixed as reasonable on both sides. And the growers have to understand that when a bargain is made selling at less to forestall a neighbour is as bad as exacting more in anybody's emergency. All this will take a lot of regulating.

It would be a great thing if we could supply ourselves with all the corn and cornmeal we need in Jamaica, and we prophesy, the time will come.—and that not far away—when it will be done. There are some imported products that we require and we cannot produce as economically as we can buy them, but corn and cornmeal can be more economically produced here than we can import them, if we go the right way about the business.

But the whole trade requires organization, combination, and the reasonable co-operation of every man interested in the subject. Co-operation is a great thing, but with most people it is only a nice useful word. Co-operation requires *acts* from each individual concerned. We are prepared to act, but our acts depend to a large extent upon a co-operation of acts, not words, of all those who wish to see something accomplished, something done. The first act is sinking self to some extent. Who is prepared in the corn business not to think of self first, but put the object to be accomplished first?

:O: CORN GROWING COMPETITIONS.

A favourite method of interesting young people in the work of the farm in the United States and of encouraging them to keep on the land, is for the districts to have Corn Growing Competitions with the offer of substantial prizes. We published some particulars of the enormous yields in some of these competitions in former JOURNALS. We noticed lately in one of these Competitions that a boy of 16, cultivating his own acre, produced 165½ bushels. When we consider the amount of cultivation given and the quantity of manure put on the land, compared with the cultivation which on good land here will give 25 bushels per acre, we feel curious to know what results something of the same trouble and expense given to an acre of corn here, would produce.

Here is what this boy did in the way of cultivation and manure:—

"In the spring of 1913 I joined the Boys' Corn Club, and in March I spread forty two-horse loads of barnyard manure over my land. Then I broke my land about ten inches deep and used 200 pounds of acid phosphate, 200 pounds of bone meal and 40 pounds of potash mixed. I raised 127 bushels of corn on one acre at the cost of thirty-eight cents a bushel.

After I shocked my corn I sowed crimson clover and rye. Early in the spring of 1914 this land received a coat of ten loads of manure. April twenty fifth I plowed my land about eleven inches deep. I harrowed it with a disk and spring-tooth harrow until the land was well pulverized, then I drilled in 440 pounds of fertilizer, the same kind I used the year before.

I had selected the very best of Boone County seed corn, and May second this corn was planted, the kernels six to seven inches apart, in rows three feet six inches apart. I got an almost perfect stand. It was plowed seven times after planting. The corn matured the latter part of September. From this acre I gathered 165½ bushels at a cost of twenty-three and three-quarter cents a bushel. Much of my success in corn raising I owe to the farm demonstrator."

:O: INSECT PESTS.

(The following is a report by the Government Entomologist made to the Hon. Director of Agriculture.)

MAY PEN AND CHAPELTON TOBACCO INVESTIGATION.

Hon Director of Agriculture.

On Monday, 9th August, the growers in May Pen Section were visited and the general situation talked over as regards cutworm and hardworm injury to Tobacco in previous seasons.

The principal growers are Messrs. Muschett, Palomino, and Roctoo, who cultivate about 180 acres altogether.

Cutworms in 1913-14 season and 1914-15 season would seem to have been a scourge necessitating replanting on several occasions in certain sections and thereby causing an uneven harvest and precipitating planting into less propitious seasons. No control of cutworms was attempted.

Hornworm was worse towards spring although trouble was experienced at other seasons. Dusting with Paris Green in the younger stages was practised but owing to a local superstition in the use of this substance on the more mature leaf it was discontinued, and hand picking totally resorted to. The expense of control was enormous.

The Entomologist met Mr. Rennalls, Secretary of the Branch Society and arranged to present a paper on Insect Control of Tobacco infesting forms on August 25th meeting.

In company with Mr. Schleifer, the Entomologist drove over to Chapelton and several small settlements around Chapelton were visited. Several minor pests were collected on settlers' crops. Black Fly was not yet present on any of the citrus examined. Mealy Bug is most prevalent on settlers cane.

Tuesday morning the Cocoa Plantation of Mr. Robt. Craig was visited and in company with the Overseer, Mr. Tulloch, various sections were visited. The plantation is in excellent order. Thrips is notable for its absence. Lashnosterna grubs at the roots are proving troublesome in areas and material was brought back for breeding out the forms concerned.

In company with Mr. Schleifer, the Entomologist drove out to the Mt. Hindmost district. Mr. Juan Chavarea has 50 acres in preparation for tobacco, but has not since opening cultivation these two years ago had any noticeable trouble from insects. For this season the Jamaica Tobacco Company have ceased to rent Morgan's Valley for Tobacco growing owing to the flooding experienced in recent years and the suffering of the crop in consequence.

Mr. Schleifer's corn patch at Danks Estate was inspected on returning and it is to be regretted that the outbreak of corn ear worms was not noticed and controlled. An average of 25-30 bushels per acre would have been reaped but at present it looks as if 50% of this will be all the good corn owing to rot and insect ravage ensuing upon the ear worm attack. His statistics for cultivation, growing, etc., when made public will however be of interest and justify the experiment.

The Entomologist during the outing was the guest of Mr. Schleifer and economy in buggy hire was thereby made. Moreover the problems of importance to the district were brought to the notice of the Entomologist by the Instructor, and much work was conveniently and expeditiously accomplished.

Mr. Schleifer intends being in Vere in week commencing 23rd inst., and has asked the Entomologist to accompany him if convenient in connection with certain problems of the district notably, Termites on cane. A return would be made to May Pen for meeting on Wednesday. Frankfield and Chapelton Branches meet on subsequent Thursday and Friday.

(Sgd.) ARCHIBALD H. RITCHIE,
Government Entomologist.

(Report on diseased plant material from the Acting Asst. Secretary, Jamaica Agricultural Society.)

The material was forwarded on the 29th ult.

1. Young fruit of mango. A brown rot or anthracnose was present due to *Gloeosporium* sp. The disease had started from the stem end of the fruit. The affected fruit should be removed and

burnt or buried with lime and the trees sprayed with burgundy or bordeaux mixture and the spray repeated two weeks later. It is also advisable to prune out dead wood as the latter probably harbours the fungus.

(Sgd.) S. F. ASHBY, Microbiologist.

(Report on Diseased Corn from Assistant Instructor, Trelawny.)

A young cob of maize was forwarded with covering letter of the 21st. The disease was corn smut due to the fungus *Ustilago Maydis* (zeae). The grains were greatly enlarged and filled with the dark brown spore powder of the fungus. This smut attacks the plant above ground (by air infection) at any stage of growth causing swellings and deformations on stems, leaves and flowering parts: on this account, treatment of the seed before planting with bluestone or formalin which is effective against several other grain smuts, is useless against corn smut.

Treatment.—Go through the cultivation at intervals and look for plants, at any age, showing swellings on leaves, stems or flowering parts. Remove and burn the swollen parts before they burst and free the spore powder. Do not throw diseased plants or parts on manure or compost heaps as the fungus multiplies in such rich food and gives rise to air spores which infect by wind. When collecting the diseased parts put those which have burst and show the dark smut powder into paper bags and burn without opening again. Manure made with straw (trash) from a diseased corn patch will carry the disease if spread on land to be planted in corn. After a bad attack of smut grow another kind of crop before planting again with corn. The disease is most destructive in a rainy season and least so in drought.

(Sgd.) S. F. ASHBY, Microbiologist.

(Report on a defect of mango fruit.)

The Secretary of the Agricultural Society sent some ripe or nearly ripe mangoes of Number Eleven and East Indian varieties which he stated in a covering letter of the 20th ult. were more or less uneatable from a defect of the flesh. The skin was quite sound but the pulp showed many white spots; these places about $\frac{1}{4}$ inch across often had irregular margins (finger-like extensions) and a cavity (split) at the centre and were tough without becoming hard. Microscopic examination showed the cells filled with starch grains but no trace of fungus mycelium nor of bacteria. The spots were not bitter to the taste. This appears to be disease of the flesh due to physiological causes, and is no doubt, closely akin to 'bitter pit' of apples, etc. Bitter pit has caused serious loss to fruit growers in Europe, United States, S. Africa and Australia. J. B. Pole Evans describes his investigations in Bulletin 1 (1909) Transvaal Dep. Agr. A commission has been working on it in Australia with D. McAlpine as expert; he has issued two reports quite recently. Conclusions are rather vague indicating that the essential factor has not been found yet. The defects may be present in the young fruit; unusual variations of moisture in the soil while the fruit is developing is one suggested cause. It is also stated to be frequent on porous sandy soils in dry seasons. The owner of the trees from which the fruit was picked could doubtless connect the pitting with abnormal weather conditions during the development of the fruit. Such information is well worth recording now in view of a future export trade in East Indian mangoes.

(Sgd.) S. F. ASHBY, Microbiologist.

STORM DAMAGE.

SHORT REPORTS ON THEIR DISTRICTS. SOME SUGGESTIONS, FROM
AGRICULTURAL INSTRUCTORS.*St. Mary and Western Portland.*

The Storm of the 12th and 13th August, 1915, destroyed the whole of the standing crop of bananas, and these in falling of course damaged the Cocoa trees by breaking the limbs and in some cases breaking off the whole trees. Beyond this the damage to crops was not extensive. Coconuts were blown down here and there, but I doubt if more than one per cent. of healthy trees were broken off. In some places where the coconut trees were growing in heavy clay lands and are affected at the base with a kind of rot probably the loss was as much as four per cent. Some young coconut trees also were twisted about by the breeze leaving large holes in the earth around the base. The pimento crop which is not a great cultivation in St. Mary was destroyed by the trees are practically uninjured.

The magnificent crop of Breadfruits was practically destroyed, Pears and other fruits including the Plantains shared the same fate.

The destruction of the banana cultivations with the exception of the "plants" was so complete that there is practically nothing to hope for except the growth of the young suckers, the tall ratoon suckers from which the Spring crop would have been reaped are so battered, that although they may be standing up straight and may be left standing and may even shoot "bunches," the fingers will I fear be so poor that rejection will be the order of the day. And except other reasons must prevail than the resuscitation of good fruit for export, the wiser plan will be to cut down all suckers which were big enough for the wind to shake them severely, and trust to the younger suckers. When it is decided however to leave such suckers standing every leaf having a particle of green colouring in it should be left on the tree, and not trimmed off merely to secure a neat appearance in the walk, except where they have been twisted and left hanging in such a way that they interfere with the heart leaf when they must be cut off. It will be wise to leave some of the tall suckers where they are no well developed followers to nurse these, even where it is decided that they are not likely to produce good fruit; these should be tested to see if they are badly bruised and if so cut off below the bruise, and the outer leaf sheaths split on two sides at the top of the suckers to prevent their becoming 'hide bound'. By taking the doubtful suckers with one hand as high as one can reach, and about breast high with the other and give a fairly hard pull with the top hand it is usually easy to ascertain if the stem is seriously bruised.

All the chopped up banana stems should be placed in heaps to facilitate future weeding and forking. When banana fields were in good cultivation before the storm there is little else to be done at present, but of course the destruction of the shade over the land will result in a speedy new crop of weeds on the clean lands and rapid growth on the dirty lands, but it would not become me to tell St. Mary planters that weeds are not helpful in their fields, or that their trenches must be kept open.

COCONUTS.—The young trees which were twisted by the wind, should be set up straight; and if necessary given some support, the

earth teased around them and the holes at the base caused by the trees swaying about in the wind filled in with fine earth and this should be made firm and fresh soil placed around them to cover any young roots which might otherwise be left exposed.

The trees most needing care at present from the effects of the storm especially where they have previously been well cultivated and are free of disease.

I visited the cultivation of the Rev. C. C. Hastings on Tuesday, 26th August where, although some of his best trees had been snapped clean off by the wind, and others very badly damaged, in fact his was one of the worst blown cultivations I have seen, the recovery of the majority was wonderful, there being young pods on the trees looking perfectly healthy which must have been blossoming at the time of the storm, while the growth of gormandizers which could be nursed up to take the place of the trees damaged beyond hopes of ever becoming good trees again was wonderful. And there were pods of all sizes looking perfectly healthy in spite of the storm. All damaged and broken branches should be cut back beyond any broken or torn part, the cuts being made perfectly smooth and tarred over carefully. Beyond this nothing need be done now except to cut off gormandizers, of course in the case of badly damaged trees, one of these, preferably the one nearest the earth will be allowed to grow to become the future tree, but except for this the more promptly all others are removed the better the chances for a Spring crop.

Small settlers have already replaced the blown down yam sticks, and settled back the disturbed heads, and are as busy as bees planting catch crops, and I feel that writing on this now would serve no useful purpose, except that I would like to say that they should be kept informed as to supplies of seed, etc., by the Agricultural Society, through the Daily and Weekly papers; a monthly JOURNAL in these times does not give information often enough.

W. CRADWICK.

E. Portland and E. St. Thomas.

As far as damage to crops is concerned, this 1915 blow has not been a patch on that of 1903 in my sections of Portland and St. Thomas. The chief damage was done by the sea in this case, whilst with the exception of the bananas but little damage was done by the wind. This was quite different in 1903, when almost every house, every coconut and fruit tree were either laid flat or damaged. In 1915, no houses except one or two close on to the sea were damaged to any extent, though the wharves at Manchioneal and the road from there to Port Antonio and one or two coconut walks actually down on the seaboard were badly wrecked by the pounding of the heavy seas.

At Hectors River a solid block of stone 18ft. x 12 ft. x 3 ft. was broken off the top of a 20ft. cliff and carried inland 55ft. These are actual measurements.

The damage in St. Thomas was slighter than Portland, the increase of loss from bananas, etc., apparently growing as one passed round the coast towards Port Antonio.

The damage to crops is about as follows:—

BANANAS.—St. Thomas section, worst hit near coast round Golden Grove; practically I suppose 90-95% standing fruit gone and some of the spring ratoons, most, however, left standing; though

badly battered, plants are all right. Round Bath and in the interior, the loss of standing fruit is probably about 60% to 75%, and the spring suckers in better shape, plants safe.

In Portland, 95% to 100% bananas gone and a large proportion of spring suckers; a good deal left, however, in the Moore Town and Fellowship section. Practically, the banana crop is gone but St. Thomas will be cutting some fruit in 3 or 4 months, whilst it will be 8 to 10 months before Portland comes back to any extent. The small settlers in St. Thomas, however, have told me that they think the blow a "blessing" as now they can sell every finger they have, whilst for months before they could not sell any at all. The only thing to do is to clean up, fork, leave the green broken leaves on the spring suckers for the present and give all the help possible with mulch or banana trash, or any manure; growing catch crops through the entirely destroyed fields will help pay the bill perhaps.

COCONUTS.—Practically undamaged, 1% loss at most. The most serious aspect of it is that the heavy sheking and wringing of the bunches is causing a large percentage of nuts big and small to fall off blighted. This will shorten the crop now and later perhaps as much as 25 to 40%. The largest loss of trees I have heard of was at Fairy Hill, but chiefly cut down by the sea; less than 200 out of 5 to 10 thousand cover most estates, some much less. The damage by heart wringing, etc., is comparatively slight. The best thing to do is to go carefully through the walks, trim up broken limbs where they in any way tie up the heart leaves, and if the heart is actually broken or damaged badly, give a good dose of Bordeaux Mixture.

COCOA.—No damage except leaves burnt a bit in places and trees injured by falling bananas. These must get immediate attention, straightening up young trees, pruning off clean and correctly, broken limbs, etc., and tarring. Early attention to this will save a lot of trouble later.

PROVISION FIELDS.—Not badly damaged, some yams laid flat, but most can be re-erected, a few perhaps broken off but no really serious loss. Conditions are really the same practically as before the storm here, except that the banana food is gone. This, however, is important as people here were living largely on them. The non-sale of bananas since last November, and the slow appreciation of many of the less energetic of the small settlers of the fact that no sale of banana meant no cash and therefore should mean planting plenty of catch crops—caused many to be depending largely on the banana for food. In very many cases provision had been made to meet hard times and there is no shortage of foodstuff at present. Plant more and plant now is the best advice to be given *re* the provision fields. Common sense will say clean up and put straight the damage done.

GENERAL CONDITIONS for the small settler are more favourable than for the large plants, as there is work on roads and estates for the labourer whilst the larger man has to foot the bill of replacement and nothing coming in.

(Sgd.) LEOA. WATES.

North and Central Manchester and St. Elizabeth.

North and North West Manchester, North West St. Elizabeth and South Trelawny are the parts of my district that have suffered most from the recent hurricane. All the bananas grown for shipment

come from these parts and I estimate that 90% of the present and 60% of the spring crop has been destroyed in Manchester and Trelawney, and about 60% present crop and 30% spring in St. Elizabeth.

All fallen banans should be cut up and catch crops of peas and corn be planted between. The keeping of the soil stirred will help to advance the few spring suckers that are left and to bring on some of those that would have been too late for the spring crop. The suckers left for 1917 crop will have to be pruned back and allow a smaller one to take its place, as the land now being open they will grow quicker and be too early.

PROVISIONS.—These have suffered in the banana districts to the extent of about 15% in other districts considerably less the average about 10%. Coffee has suffered in a few districts, but on the whole about 5% of the crop lost. Other crops have not suffered to any appreciable extent.

With the continuous rains we are having all signs will soon disappear except in the banana districts.

THOS. POWELL.

West Central District.

Fully 86% of the fruiting and early spring suckers have been destroyed, while the suckers that escaped have been so badly battered, that they will have an adverse effect on the suckers that will fruit in the early spring. Plant bananas have not felt its effects so badly, and the loss will not be more than 5% to 10%.

I have been advising the small cultivators to chop up the fallen bananas, clean round the roots to allow the peepers to come through, and then select for 1917 spring crop. They would be quite willing to do so, but are unable, from a lack of funds.

Cocoa trees have been damaged to some extent by the fallen bananas; I have advised these trees to be thoroughly pruned and tar applied to the cuts as a prevention of disease.

Yam cultivations have not suffered seriously excepting in a few exposed situations; Macca and hard yams have sustained the most injury, while yellow yams have come off lightly. Other crops have not sustained much damage.

It is very unfortunate for the planters that another disaster should follow so quickly that of 1912 in the west end; and as a consequence many of them who borrowed money from the Loan Banks are in a very serious state.

It has been the crowning disaster to a succession of adverse circumstances; there was no market for their spring crop of bananas, and when opportunity offered later to dispose of a little fruit, the prices had gone down.

Unless the Loan Banks are able to meet them with an extension of time for re-payment (it will be quite 18 months before they will be in a position to make payments, as 25% of their spring crop is destroyed) and unless the Loan Banks will grant new loans to those who have paid back a portion of their liabilities, there seems little prospect of thier paying present liabilities or being in a position to re-establish their banana cultivations.

No lives have been lost or houses damaged.

J. BRISCOE.

Hanover and Southern Westmoreland.

It is impossible to visit every holding during the short time in which it is absolutely necessary to be up and at work over cleaning up and clearing away hurricane damages so as to get the maximum of good results.

The experience gained in 1912 in these western parishes should be of real value now, and the wise man is he who will put to the best use the lessons taught by that hard schoolmaster, and avoid the mistakes that so many made then.

I offer these few suggestions to readers of the JOURNAL in these parishes of Westmoreland and Hanover in the hope that they will be of some use to them:—

1. BEGIN AT ONCE.—As far as I am aware there is no financial aid coming this time, none is available and it is as well for every man to make strenuous efforts to put himself back in his position before the storm by restoring, and where possible, enlarging his cultivation of saleable produce.

2. BANANA FIELDS.—Cut out and chop up all broken stems. In cases where they were large trees with bunches or were near the time of shooting, leave the stumps as you do in reaping fruit for market, taking care in the latter case to destroy the growing heart.

The young banana trees for 1916 crop are very little damaged and have only in most cases had their leaves “whipped” by the storm. These must be left and cared. Fields which have not had a recent forking should now be forked as that will help them to come faster and so restore in the quickest time the large weekly shipments.

COCOA.—This crop has suffered considerable damage by falling banana trees and in a less degree by the force of the wind. The only thing to do now is to *cut out* rather than *cut off* the broken and damaged branches. With your well sharpened pruning knife, make a clean, smooth cut removing the damaged limb from the trunk at its junction with it. All torn and ragged wound caused by tearing and breaking should be smoothed down with the knife. Even bruises on the trunk should be cleaned by cutting a thin slice off immediately under the damage.

A thin coat of tar should be rubbed well into the cut surfaces with a husk made of a piece of cocoanut brush. In excising any portion of the tree the cut should be so made that no water can lodge in it, as this only lays the foundation for canker and dieback.

In the case of young trees being broken off, as for instance, those recently planted from the nursery seedlings, a gormondizer should be encouraged to grow and that will make a new head. On no account must a cocoa tree be chopped with a machette unless the wound made be subsequently smoothed with a knife or chisel.

COCOANUTS.—The Hanover planters will do well to recall the outbreak of leaf disease on their trees after the last hurricane and prevent its recurrence by clearing the trees of all damaged branches that will start fermentation and decay in the “house” of the trees and thus avoid loss later on.

YAMS.—Very little advice can be given about this crop. All sticks should be put back at once and in cases where the vines of unripe yams have been broken off, the hills should not be troubled till it is time to take up heads and then the larger yams can be “junked” and the lower part used as food.

OTHER CROPS.—One lesson we all have learnt, I hope, is the necessity for planting more hurricane resisting crops, such as cassava, sweet potatoes and cocoas. These are all paying crops and in a country where hurricanes may occur at any moment are safer than bananas and yams. Advantage should be taken now of the open fields to plant large quantities of peas and corn as the behaviour of the Kaiser as well as the elements make a large production of food crops a necessity.

R. C. SOMERVILLE.

St. Catherine.

The damage done by the storm in St. Catherine between the 12th and 13th August is considerable, and although to the ordinary observer it does not appear to be as bad as the storms of 1903 and 1912. the effects are far greater because of the unsatisfactory condition of the fruit trade during the previous 12 months, the severe drought which preceded that, and the further fact that few persons had fully recovered from the 1912 blow.

In lower St. Catherine, I estimate the loss of bananas of the present crop (up to March next) at 65 to 70%, while in St. Johns and St. Thomas-ye-Vale there will be no shipments from now until April or May next; the few stems that may mature during that time will be required for home consumption.

For next year's crop, I estimate a loss of between 20 to 30% in quantity, and perhaps 10 to 15% in grade up to September.

Cocoa trees have suffered, the full crop will be short by about 35 to 40% and will be late; the spring crop next year depends on how the trees are now handled.

A large proportion of the yellow yam crop has been destroyed, and perhaps 20% of the negro yams. Coffee and other crops have not been appreciably affected.

BANANAS.—Cut up all fallen suckers, but leave all those that are standing, provided they are not wrung at the neck, or leaning. The idea is "cut up," don't cut down, and so conserve your shade as much as possible. Allow nature to reassert itself, and by October you will be able to decide what should be left and what removed. Where suckers have been uprooted, be careful about your 1917 peepers. Those left back in July for the spring of 1917 will, with the changed conditions, develop rapidly, and will mature at the end of next year; it is advisable, therefore, to select a peeper about 8 to 12 inches high in October. If there are none, then plant a fresh sucker.

COCOA.—Remove all banana suckers that may have fallen in the trees, and where limbs have been broken, cut these off carefully and tar—above all, keep the roots of the trees free from rubbish of every kind, and see that there is proper drainage for every tree. The use of a quart or two of lime to the roots of cocoa trees just now will be helpful in sweetening the soil and keeping off grubs. Where banana cultivations have been badly hit, and the cocoa trees are very young a crop of cowpeas may be helpful, and to those who have lands to spare, the planting of quick growing crops such as sweet potatoes, peas, corn and vegetables will prove not only useful but profitable.

S. LEO. MOSSMAN.

St. Andrew & W. St. Thomas

The hurricane of August 12-13 was not, strictly speaking, a cyclone which is always more destructive, having a circular as well as an onward motion. The result was that fruit trees and bananas became the chief victims. Though in some exposed situations even cocoa and orange trees were uprooted, yet there were other sections which escaped practically undamaged.

Banana has suffered most—a loss to many of the only source of revenue; others have additional strings to their bows—wise men. On all sides the question is being debated whether it pays to cultivate bananas. Here are two convincing facts connected with the industry. A prominent gentleman in one of the western parishes when he started out on the enterprise had his first crop blown down. He resuscitated the destroyed plantation. Again the crop was blown down. Again he restored the plantation with the result that he reaped the crop, and recovered all initial and other expenses. In St. Catherine a planter after sustaining three similar losses in succession became disgusted and sold out. The newcomer was fortunate to reap the next crop, his very first, and this paid for the property.

Following a hurricane the all-important question is how to repair the damaged fields. At once proceed to free the plants from all entanglements and pressure. Bananas left standing and entangled in their own leaves should have these pruned off. Cut up the fallen plants. Coffee pressed down by fallen bananas and branches of trees, should be immediately relieved and lifted again into the light and air. To injured cocoa trees apply the art of tree surgery assisted by the tar brush. It is better to dispense with a branch bearing a few pods and save the tree from future decay. A storm is not entirely an unmixed evil. It brings rain; it leaves on the ground a plentiful supply of manure which should be evenly distributed over the cultivation; many once clustered spots are now well ventilated, a condition which makes for a good crop next season; numerous valuable plants lying on the ground can be replaced at a less cost than when even inferior ones have to be dug up.

The bananas left standing will not produce as fine stems as they would, had there been no hurricane, but will produce good fruits if not followed up by other winds such as harassed the fields after the 1903 storm. These first stems will be valuable for food.

Immediately after the storm the writer straightened up a field of leaning young bananas, drew the soil from about a yard away to the bulb and firmed it round. As far as practicable stable manure was added. To-day they tell no tale of the hurricane. In older fields be careful to see that the plants left standing are well in the ground. This also is an opportune time for the replanting of old fields thus insuring a crop for 1917, while scattered ratoons would produce a crop in 1916.

Notice how much better a young field withstands hurricane, and make it a rule always to have some plant suckers coming up during hurricane season. The same applies to China or dwarf bananas. Cultivate an appreciable percentage of these for local use. Even for shipment these may yet be required. They are shipped from the Canary Islands. Clean up banana fields and plant in some kind of peas, especially cowpea varieties, black eye, quick-increase, caroline, etc. Corn may be planted only at wide intervals.

YAM.—This is one of our most valuable crops, and one concerning which much anxiety was felt. The leaves of those trained on tall trees were battered, but the roots are intact and the vines will soon put on new foliage. In cases where the “poles” fell no time should be lost lifting these up again to prevent the dropping of the leaves. When sticking yams it is always best not to drive the poles very deep, while the portion of the vine between the “bank” and the “pole” should be long enough to prevent injury through falling.

COCOA.—has been badly whipped in some localities, but in the great majority of cases the stems and roots have not been wrung and twisted. The trees will bud and bloom at the same time. Remove the profusion of gormandisers. If the crop be at all reduced that will be due more to the heavy rains beating on the flowers.

COFFEE.—Very little of this crop comparatively has been lost. Since the storm the trees have put on new blossoms in the Port Royal Mountains. Be careful to gather the forthcoming crop promptly, so as not to risk loss through heavy rains.

Where coconut boughs are badly wrung, and young ones torn from the cabbage, these should be cut off and some antiseptic applied to close the gateways against disease germs.

Among food crops no ones should fail to plant a few hundred, or thousand holes of cocoas. If the different varieties, “Minty,” “Sally” and “Commander” be planted these will mature in the same order, and a regular food supply obtained for six months or more. Next to peas and beans, cocoas and bananas thrive best together. Cocoas are always in demand at remunerative prices, and wind has little or no power over them.

The next best thing after a storm are seasonable showers. These are falling regularly, and considering the suitability of the season for planting sweet potatoes, peas, corn, vegetables, tobacco, etc., if we must have hurricanes, then let us have them in August.

The cultivations were washed during the storm, especially where there were no blind trenches. Open new trenches where these are needed, and clean old ones as a safeguard against the October rains.

A. P. HANSON.

West Portland.

The greatest loss to the parish perhaps in actual cash for the moment is in bananas. Cultivations along the sea and on high hills have been hard hit, though the greater damage is along the coast. The full crop for this year and the spring crop for next year have been practically wrecked. One is safe in saying that from 90 to 95 per cent. of the bananas have been destroyed. In some cases it will be quite a year before another crop will be reaped, but in others, within nine and ten months fruits may be had.

Very little damage is done to cocoanuts on the whole. In some cases the trees that suffered, long wanted something to carry them down.

Cocoa has suffered much in some regions, but most of the damage is due to falling trees. Trees have been uprooted here and there, and in some the leaves flagged off. The crop has been damaged considerably in some localities.

Yams have not suffered much, but breadfruit have been battered badly. Fully half the crop is lost.

It is useless leaving suckers in banana cultivations that have been battered, with all the leaves torn and hanging down, with a hope of getting marketable fruits from them. The small settlers may of course leave the best of the lot here and there as these will give fruits when foods are scarce. In a few cases there is need for replanting, but as in most cases, the suckers have not been uprooted, if the damaged portions of the tree are cut away, say within a yard to a foot of the ground, the followers selected, the rest of undesirables pruned away, the field will soon be alright again.

Crops of peas (chiefly cowpeas) can be reaped from these damaged areas if put in at once. It may also be advisable to run a single row of corn between the bananas.

In some cases where many should establish canes in the place of bananas this is an opportunity. A row of canes put in between the bananas would be a wise thing, to take the place of the bananas in time.

Young cocoanut trees that have been blown down should be immediately raised and propped up. These will in time take root again. It is practically useless propping cocoa trees that are blown down; allow them to remain and they will in time send up suckers. The ones that start nearest to the ground should be left all the others removed. Torn branches should be cut off without delay and properly tarred.

E. A. GUNTER.

Southern St. Elizabeth and Southern Manchester.

As a result of the recent storm over 300 head of goats, chiefly pigs and sheep have perished, only one or two dying in South Manchester. Cassava was upturned, older banana trees fell, again poles gave way and the roofs of several thatched houses were blown off. Provision fields on hill-sides and on depressions with hills surrounding were either carried away or covered by the water of the flood rains. 15.07 inches of rain fell during the month of August, and between 9 p.m. on the 12th and 2.30 p.m. on the 13th 9.01 inches fell. The damage by the storm on the whole was not great when compared to other parts of the Island. The effects on plants of the heavy rain during the storm and subsequent showers, have gladdened the hearts of all the agriculturists here.

E. J. SMITH.

Southfield,
6.9.15.

St. Ann.

The hurricane which passed over this island on August 12th and 13th, did considerable damage throughout the whole of my district, and has been a serious set back to all. On account of the exceptionally favourable seasons during the last 9 months, the pastures, the water supply, and all cultivation was rapidly recovering from the effects of the severe and persistent droughts from which these districts had suffered for several years. There was abundance of practically everything (except ready money) and apart from the slow demand for bananas and pimento, the present general conditions were satisfactory and the prospects for the near future exceptionally bright. Both man and beast had had the lean years on account of the persistent droughts,

and we seemed to be on the very threshold of more fruitful and more prosperous times, when that much dreaded slip of red paper appeared at the various Telegraph stations throughout the Island filling the mind with anxious thoughts. To say that throughout St. Ann and Trelawny we have not suffered loss and very serious loss would not be true, and have suffered these losses when we could ill afford to do so. But to say that these losses have been as serious as they appeared to be on the morning after the hurricane would be equally untrue. Writing some three weeks after the storm it is most gratifying to note how rapidly things are righting themselves again.

It is difficult even yet to judge correctly of the damage done to various crops; for instance it is not possible to say what percentage of the coconut crop on the trees at the time of the storm has been damaged, the percentage of yams which may not give the usual return or make "Heads" nor the percentage of bananas which will give profitable bunches, although the suckers are still standing. However, as far as can be estimated at present, the various crops have suffered somewhat as follows:—

I. Coconuts.—Very few trees damaged or blown down, a good many nuts blown off, and quite a number of nuts still falling.

II. Pimento.—Little damage to crop very few trees down.

III. Coffee.—Trees not damaged; a small proportion of the berries blown off.

IV.—Bananas.—A large proportion of the large suckers especially those with bunches blown down; but quite a good proportion of the suckers for the 1916 crop are still standing, but what proportion of profitable bunches these will yield it is impossible to say yet.

V.—In connection with foodstuffs only yams have suffered and these only to a limited extent, where they were blown down they have been put up again and very few will suffer to any extent.

VI. Corn.—Some corn has been blown down, but nearly all of it was fit, so that with a little extra curing practically all was saved.

VII. How to treat the fields.—Of course the first thing to do is to carefully remove all damaged limbs and branches from the coconut, cocoa, coffee and other trees and tar the cuts. In treating the banana fields it must be remembered that some will be needed for home use, as well as for export, and perhaps a larger proportion than usual for home use. So that suckers which would not give a bunch for sale, may give one for use at home. It should also be remembered that all the large suckers having been blown down, a sucker which under ordinary conditions would have been too slow will now grow much quicker and may catch the market. Peas and Beans of various kinds should be planted as soon as possible, to provide an early supply of food and help to keep down weeds. Corn may also be planted in the very open places thinly, but remember the bananas are going to grow quickly and will soon crowd the field again. Of course the yam fields have already been treated, and the sticks raised up.

(Signed) E. ARNETT.

.Clarendon.

Long ere this reaches those for whom it is intended, all the bananas blown flat or broken would have been chopped in small pieces to be restored to the soil and utilised in making future crops. Re-planting

in case of bananas badly uprooted would also have been done, and the Clarendon planter would have made up his mind to force forward by extra good care the plants left to him, so as not to be altogether out of a spring crop for 1916. An unusual number of suckers will now make their appearance around the roots and the planter must carefully make his selection for 1917 and then get rid of the rest from time to time.

Cocoa and other fruit trees should be carefully attended to, now that the bananas have been put in order. Broken or torn branches should be neatly cut away, the wounds rendered perfectly smooth and tarred over to keep the water and disease germs out. Fortunately, few trees have suffered from broken roots and with proper attention to cocoa a good crop may be expected, possibly a little later than usual.

S. A. SCHLEIFER.

—:O:—

(Written by the Owner of one acre of Bananas.)

There is no coffee through my acre of bananas yet.

When the storm of August was over and the damage ascertained, every banana left standing was tested to see if the trunk had been twisted or wrenched: if it stood straight and hard it was left; no leaves so long as they kept green were removed; every yellow one was cut off. All the fallen limbs were cut up in pieces and not left lying close to the roots, they were piled in a row up the centre. On each side of the pile Cocoe (Tania) holes are being dug 3 ft. apart to be planted from "bits," and between these and the banana roots a row of Cowpeas may be planted. If I could get lime at a reasonable price, I would spread lime through to counteract the possible souring of the soil with so much juicy green stuff on the soil and the heavy rains falling. I am trusting to the trenches which have been cleaned out to keep the soil from being water-logged.

I do not expect bananas before June to August next, but at any rate I can have Cowpeas in 4 months and Coccoes in 6 months, and I will be able to dig Coccoes for 2 years afterwards without disturbing the bananas. A neighbour has planted two rows of corn up the middle of his bananas. If I had 5 acres instead of 1, I would do so too, but I would still plant some Coccoes. I do not think one row of Corn up the bananas will do any harm and the corn will pay for the weeding. A row of Cowpeas on each side of the Corn will do good too.

—:O:—

SUGAR.

A good many of our Branch Societies, in districts where small settlers grow much sugar, are complaining of the low price of what is locally called wet or pan sugar; the average price of this seems to be about 3/- per tin of 64 lbs. It is difficult to sell because the markets are glutted with it, the seasons have been good, there are fine crops of cane, and every little mill is working, while the low price of bananas has probably caused every settler who has both bananas and sugar, to put forth more effort in his sugar. Resolutions have come to us asking the Parent Society to approach the Government to get "something done" so that the small settler might sell his sugar to better advantage. We, however, beg to point out to every Branch Society and to every reader of this JOURNAL, that, per Circular dated 26th September last, we pointed out that although the price of sugar would

be high abroad, this would not affect the small settlers' sugar which was only used by a limited number of people and that if some of those who usually could put a lot of this sugar on the market and were likely to have some storage room, would make dry sugar, this would relieve congestion for the smaller men. We went on to state as follows:

"I suggest therefore that small settlers who have cane mills and have been in the habit of making "wet sugar" should, through their Branches, consider the advisability of making dry sugar in barrels. It is a simple and usually well known process to drain the wet sugar. Then this dry sugar could be sold in the local shops and in towns as Muscovado."

Now 3/- per tin of 64 lbs. is £5 5s. 0d. per ton, but if course wet sugar contains a good deal of moisture compared with dry sugar, so that the price is probably equal to £7 15s. 0d. per ton; but the local price for common dry sugar (Muscovado) is £7 per ton, for export. Now in every district of Jamaica there are small shops selling dry sugar which they buy from merchants in Kingston who themselves get it from a sugar growing district like Westmoreland. This is sold at not less than 3d. per lb. locally which means £28 per ton. Surely there should be enough local enterprise, co-operation, combination, knowledge, experience and labour to enable local sugar makers to dry their sugar in barrels the same as used to be done in other parts quite regularly and commonly. This is a case for self-effort and not a case for the Parent Society or the for Government. The draining of wet sugar in barrels is no doubt a slow process, but after the first batch is done there is always a turn-over. It certainly seems curious to see cartloads of wet sugar pass a string of local shops, and go 20 miles to peddle tins of sugar in such distant markets at 3/- to 4/- per tin, and then to find sometimes the same carts coming back with barrels of dry sugar brought from Kingston.

We do not say that this process is easy, and we know that it is not always easy to sell Muscovado Sugar at a profitable price, for, people are all now keen on buying Brown or White Albion, but we feel that if good clean Muscovado was being offered in country shops not dull dark sugar, it would take well at the present time, because it can be used in Coffee, and Coffee is the chief drink. It also does quite well for sweetening porridges and puddings.

—:O:—

HOUSEHOLD HINTS.

GUAVA JELLY.—Wash ripe Guavas, top them, put in a copper or enamel vessel, just cover with water and boil until the fruit burst. Then strain off the juice, mix with an equal quantity of granulated sugar, strain again and boil until it will jelly.

BANANA TRIFLE.—Bananas sliced longways in layers with Jelly or Jam between, covered on top with boiled Custard.

YELLOW YAM PUDDING.—1 cup Grated Yam, 1 cup Sugar, 1 cup Currants, 1 cup Breadcrumbs. Spice to taste. Candied peel if liked, and Raisins mixed with Currants, if preferred. Banana figs are a good substitute for either or all. One tablespoonful of butter beaten up with the sugar, the yam added last. Suet may be used if preferred to butter.

SCRAMBLED EGGS WITH GREEN PEAS.—4 eggs, 1 tablespoonful milk, 1 oz. butter, ½ gill cooked green peas, salt, pepper, slices hot buttered toast. Reheat the peas in a little butter, beat up the eggs, add milk and seasoning, melt butter in a small pan, pour in the egg mixture and stir over the fire until it just begins to thicken, then add peas and a pinch of castor sugar. Stir this over the fire for a minute or two, then heap up on toast and serve.

TOMATO SAUCE TO KEEP.—4 lbs. or more of ripe Tomatoes, $\frac{1}{2}$ pint of water. Wash fruit and boil soft, rub through hair-seive and to 2 quarts of pulp add 1 pint Vinegar and 1 tablespoonful of salt, 1 oz. bruised ginger, 2 pegs of garlic, 1 teaspoonful peppercorns, 1 blade mace and a dust of cayenne. The spices in a piece of muslin, boil all together with the lid off the saucepan until thick as cream, then strain, cool and bottle, cork tightly.

(We find the small "bush" or half wild tomatoes which grow up of themselves from seeds of garden tomatoes thrown out, make the best sauce as they possess a peppery pungency suitable for sauce.—Ed.)

MOCK DUCK.—Put enough dripping in a saucepan to just prevent the potatoes from burning. Slice in as many potatoes as required and 1 onion to each lb. Sprinkle well with pepper and salt, lay bacon on top, cover closely. Cook till potatoes are done over a rather slow fire. This is a delicious Welsh dish.

GUAVA JELLY.—The following is a professional recipe for making Guava Jelly received from a manufacturer who ships abroad:

Take 12 gallons of fruit and 9 gallons of water. Boil till all is pulp, strain, then add 1 lb. of sugar to each quart of juice, and boil until it is thickening. Smaller quantities in the same ratio.

ORANGE MARMALADE.—Weigh the oranges before boiling them, and allow 2 lbs. fine white sugar to every lb. of fruit. Boil in plenty of water until they are so soft that the skins can be easily pierced then drain and peel them. Carefully remove the pulp with the back of a teaspoon, and throw the pips and skins into cold water. Cut the rinds into thin strips. Rub a preserving pan quickly round with a cut lemon, and boil the sugar to a syrup with a quarter of a pint of the strained water in which the pips were soaked, to each pound. Throw in the fruit, let it boil, then draw it to the side of the fire, and simmer gently until the marmalade jellies. Put it into jars, cover closely, and store for use. Time, half an hour to simmer the marmalade.

SCOTCH ORANGE MARMALADE.—There are many ways of making this marmalade; but most agree in the proportion of sugar to fruit. We give the simplest and most economical way: Boil the oranges until they are tender and can be easily pierced with the head of a pin. When this is done, cut them open, remove the seeds, separate the pulp from the rind, and clear off the coarse filmy parts from the orange and some of the white inner part of the rind. Shred the rind, the finer the better, and some of it may even be pounded and added with the shreds of the pulp. Clarify the sugar, allowing one pound and a half of sugar to every pound of fruit. Boil the syrup for ten minutes. Throw in the pulp, juice and rind, and let all boil together until the marmalade jellies. Sweet oranges are sometimes used for marmalade, and only a small portion of Seville or lemon pulp and rind is added to flavour. Time to boil the oranges, from three to four hours; marmalade from thirty to forty minutes.

GUAVA VINEGAR.—To make good vinegar the fruit should be well ripened. Wash and cut in halves, cover with plenty of water and simmer two hours; strain through a colander and then strain juice through a bag. Bottle and then tie muslin over the tops of the bottles. It requires about five months to turn into strong vinegar.

NOTE.—In filling jars or bottles with juice which is to make vinegar remember that it is well to leave space for plenty of air and only fill receptacles about two-thirds full.

CHOCHO.—(1) Peel, take out centre and cut in squares. Boil in salted boiling water till tender. Drain and cover with white sauce (half spoon butter, half flour teacup milk).

(2). When boiled drain well and mash and season with salt and pepper, and add a little sauce—or plain milk.

(3). When squares are tender, but not broken, dip in beaten egg and bread crumbs (crackers dried in oven and crushed are just as good) and fry in boiling fat. Many people don't know what boiling fat is; as long as fat hisses and bubbles it is not boiling. It must be perfectly still, with smoke coming from it. Also too many pieces should not be fried at once as they chill the fat. As soon as cooked, each piece should be well drained, if well fried, a colander will drain off all grease.

(4.) They are quite good stuffed. Pare-boiled whole, when tender, cut in half, remove centres, and fill with nice minced meat. Serve with gravy.

STOCK NOTES.

Veterinary Surgeons are not available for the ordinary man who keeps stock in the country, so that as almost everyone keeps stock, knowledge how to treat common troubles in cows, goats, pigs, etc., comes in useful. Any member of the Society can write us for information and if the matter is too technical for us to deal with, we can pass it along to the Government Veterinary Surgeon through the Director of Agriculture and get a reply.

The Society has been importing lately a good many books on different branches of stock-keeping, one object being to find the best consistent with economy. These, however, are nearly all written for circumstances and conditions in Northern countries. Books on stock, simply written, would be most useful to us; but anything we find that can be of use to the ordinary stock-keeper is rather dear, and with some that are dear when you refer to them to find out what you particularly want, you find no description that fits the case you have in hand—there seems always to be something vague, a lack of detail, a lack of specificness as it were. In time, no doubt, there will be books written for circumstances and conditions in Jamaica for ourselves. We have written one on Poultry with which we are familiar, and we have written one on Goats with which stock we have had intimate experience; a simply written book on cattle for Jamaica conditions and circumstances is much needed.

If every reader of this JOURNAL would send us in descriptions of the troubles among stock they meet with and how they treat them, we would within a short time have a large collection of experiences which could be edited by probably more than one man of knowledge in stock keeping, so that something very practical and useful could be issued. With stock as with human beings, prevention is always better than cure.

SHELTER FOR STOCK.—If readers of this paragraph will refer to Poultry Notes in this JOURNAL, they may read something about shelter for stock. There should be shelter provided, not so much for cattle which roam in large pastures and can take some kind of shelter under trees, and which animals also are not so susceptible to the effects of heavy rain, as for horses, goats and pigs.

Small settlers are great sinners in this respect. They are obliged to tether out their asses, mules, goats, pigs, etc., and animals thrive in this way when they are properly attended to better than when running at large; and in our ordinary weather exposure night and day does no harm—probably the stock are even better with fresh air all the time. But when heavy continuous rains come on, then it is a different story: the animals do not eat and cower without shelter, many get so battered they die. By reason of good constitution most pull through, and when sun comes out quickly recover, but many do not recover.

In the storm of 1909, 1912 and now 1915, there was a large mortality among donkeys, pigs and goats, which could have been obviated if these animals could have been brought under shelter even if they could not have been supplied with food during the period of storm.

Stock shelter is an easy thing for settlers to make, and is inexpensive. In fact we go further and state that such shelter should not only be provided so that stock might be brought in in case of a storm of wind or rain—or both, but that this practice would pay for providing

manure also. Even small stock, according to climate either by day or night, should be brought in, given food, and so accustom them to be domesticated and tame: the result of this practice would be a collection of very valuable manure which could be put on the land. It would cost a little trouble at first until the animals got accustomed to what was expected of them, but after that would be a most useful practice; the stock indeed might thrive better than being tethered or pastured out all the time.

BAD LIVERS.—On some soils in Jamaica almost all cattle—even though only 2 years old—when killed are found to have bad livers. The curious thing is that this does not seem to affect them much and they may go on living until 4 years old or more, growing and fattening all the time. There is often a charge made that cattle drinking from ponds cannot be healthy. Yet they have healthy livers although they often suffer from Strongyli. On the heavy black soils, however, where there are streams, and where no proper drinking pools are made, cows drink from the same marshy puddles, far worse places than ponds. These cows become infested with Fluke Worms, and the cause of the bad liver is the Fluke Worm. A few liver Flukes in an animal cause little trouble and it seems that there must be some weed in the pastures which being eaten acts medicinally and helps to keep the chest in check, otherwise, the animals could not go on living for 4 years without becoming as greatly infested that they would show external symptoms, of unthriftiness, and perhaps ultimately die. Very few of the cattle, however, that are killed, whose livers are really bad show any external symptoms of being affected much. All the cattle where this liver rot is prevalent should be given *rock salt* as the Fluke Worm is sensitive to the effects of salt. Good drinking places ought to be made for the cattle so that they may not drink out of puddles.

:O:

POULTRY NOTES.

We have continually written in this JOURNAL about the prudence of erecting shelter, cheap houses for poultry. No matter how even our climate usually is, and how fowls like best to roost upon trees, and keep good health there during ordinary weather, whenever a storm of wind and rain comes along—and the two usually come together—there is more damage done to the fowls than the cost of erecting a fowl house and a small enclosure to oblige them to roost in the fowl house.

In November 1909, from the middle to the east end of the Island, there was a rain storm when the rain poured incessantly for 3 or 4 days and nights so terrifically, that there was a phenomenal rainfall and stock of all kinds were battered or starved to death. as they could not feed. We had record of people who lost from 50 to 75 per cent of their fowls that roosted upon trees, and had no shelter. Donkeys and goats too, which were tethered out, were particularly hardly dealt with, hundreds being found dead after the rain stopped.

In 1912 from the West End along to the middle of the Island, we had another storm—this time a hurricane, but there were heavy rains then all over too.

Here again in 1915 we have had another storm of wind and rain all over, and fowls got so battered that if they were laying they stopped laying, and if they were just about to begin laying at this time of the year, they did not begin.

It pays to have a shelter for all stock, but especially small stock, and more especially poultry.

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Although we have been writing about poultry in this JOURNAL for so long and have published a little book on Poultry Keeping in Jamaica, still almost every mail brings us letters from people who are not members of the Society, and who have apparently never read the Agricultural JOURNAL, and certainly have not got our little book on Poultry: they ask questions, at the same time stating what they have done, and some of the remedies (?) they have used which are heroic, far more likely to kill than to cure.

How often have we written about roup and given particulars how to treat it? We have at the moment of writing, a letter before us where some 30 head of poultry were attacked by roup and mostly also had a pip on the tongue; the owner had many losses. The treatment given appears to have been a raw mixture of kerosine oil and limejuice, with no diluting agent such as sweet oil when the medicine might have been of some use; but the kerosine oil and limejuice given alone must have been rather hard on the fowls. Pip, which is a hard growth on the tip of the tongue, is usually the result of a neglected attack of roup when the fowls nostrils are blocked up by roupy matter and they have to breathe through the mouth. The usual way that people treat it is to nip off the growth with the finger, in which process half the number of fowls treated lose the whole tip of the tongue—and the tip of the tongue is a most useful thing to a fowl, apart from the cruelty concerned. A tremendous lot of cruelty is perpetrated on animals through sheer ignorance, and now-a-days there is not much excuse for people not being able to get good knowledge as to treatment of all kinds of stock. After the storm there was a large number of cases of roup, also some cases of cramp, i.e., the fowls losing the use of the joints of their legs.

The symptoms of roup are first, a watering of the eyes followed usually by matter in the eyes, and in the nostrils, the matter also exudes from the roof of the mouth. The eyes, nostrils and mouth should be washed out with a solution of Permanganate of Potash in water; then Healing Oil should be touched in the eyes, nostrils and roof of the mouth. In the drinking water for the fowls, a teaspoonful of Eucalyptus Oil should be placed; this is the quantity for 2 quarts of water. A good Tonic Powder should be given in the fowls soft food to stimulate them; but failing this, ordinary ginger, mustard or pepper the first being the best—should be used, 2 teaspoonfuls to a quart of meal.

For cramp, strong embrocation rubbed on the joints of the legs with a pinch of Sulphate of Iron in the fowls drinking water, form usually simple and effective remedies.

MOULTING.—Fowls have begun to moult and eggs are getting scarce, and they are usually scarce between September and Christmas. Encourage moulting fowls to take exercise by giving them good heaps of manure or trash to scratch among and find their food; give them a little sulphur in their soft food—one teaspoonful to a pint of meal is a good dose, which is enough food for 10 fowls at one meal.

The usual tendency is to slack off feeding because the fowls are not laying, but if these fowls have to make a new set of feathers it is reason-

able that they should get as much food as before if not more: they have to make new feathers and get up enough vitality to start laying and keep the laying up some months after they start.

* * * *

In these times no pullets should be sacrificed for eating purposes, but every one carefully kept to lay. We do not know yet what may happen to make foodstuffs of all kinds scarce and expensive. Eggs are the most nutritious and useful of all foods here: therefore save your pullets.

LIVER DISEASE.—There have been complaints for a long time of a common trouble among fowls in St. Mary, of which the symptoms were—the comb got dark, the fowl dwindled away, sometimes picked up a bit, then got worse and died. This looked like disease of the liver which is comparatively common, but might have been tuberculosis or consumption of the lungs which is not common. Ultimately, Mr. Cradwick sent up a hen which looked nearly dead. It picked up considerably in a few days and had a good appetite—usually a symptom of liver disease. It was then killed and found to have a very bad liver—rather less than half a liver indeed.

The cause of this trouble will be found to be due principally to a large excess of starchy food from chickenhood on, and over successive generations, so that a bad liver or a tendency to it, is inherited. Chickens in St. Mary, we presume, get a superabundance of bananas and plenty of corn, usually American. We can only advise an instant complete clearing out of any fowls that show symptoms of this trouble, a variety of food, and a weekly scour of Epsoms Salts in the drinking water with a small pinch of Sulphate of Iron in the drinking water twice a week. A good tonic powder which contains Iron and to which Epsoms Salts is added, might be given in the food in place of Epsoms Salts and Sulphate of Iron in the drinking water, and then all that would require to be done would be to add a trifle of disinfectant in the water every day. A pinch of Permanganate of Potash serves the purpose, or half a teaspoonful of Jeyes per quart of water. But never neglect the dose of Epsoms Salts once a week. The best specific, however, for liver troubles is calomel.

:O:
COMMENTS.

STORM.—The JOURNAL for July was printed and ready for issue when the storm of the 13th and 14th happened; that is why there was no mention of it. Advice now for this JOURNAL is rather belated, but the various Instructors have already been through most of their districts giving advice suitable for local circumstances. The Instructors also have written some paragraphs for this JOURNAL.

In the last JOURNAL there was a paragraph written a month before the storm, repeating advice often given and that is—when bananas are so very plentiful as they were from March to August, instead of writing that they were wasting—"rotting on the ground"—is the familiar phrase, why not make dried banana chips of them, store in barrels to be ground into meal in a common corn mill when required. We know a few people who did this and they have now some barrels of dried banana chips and meal which they can fall back upon.

One planter, we understand, dried bananas (in a Drier) skin and all to make a feed for mules.

From all we learn, the banana plantations in the western part of St. Thomas Ye East, and in the plains of St. Catherine, suffered least. All other parts seem very much the same, practically all the tall bananas are broken or smashed. Those left standing would in most cases be as well down; they will not produce saleable fruit. In the case of small settlers, however, who look for a food supply, they may be left standing to see what they may do. Here and there bananas planted this year have escaped altogether, especially if they were late, and so were still short.

Fortunately other foodstuffs are in the main very plentiful. The corn crop planted March was not damaged; the April planted crop was still mostly green and suffered a lot. One field we know where the still immature cobs were taken in to save them, gave less than one-fourth of the March planting; same soil, same conditions; the grain was of course unripe and shrunk in drying.

Those who ever argued that planters large and small should devote all their land and energies only to the growing of crops for export, have had two object lessons—first, the war—which caused a shortage and decrease of imported foodstuffs and now the storm which will cause a shortage of our chief exportable crops, and consequently a shortage of money; but with plenty of his home grown foods—corn, yams, sweet potatoes, etc., the small settler is in a far better position than if he had specialised all along in bananas and cocoa or bananas and coffee *alone*.

————:O:————

STORING CORN.—We are glad that Napthalene has “caught on.” It needs patience and much insistence to get anyone even to try experiments. Yet the use of Napthalene to keep weevils from corn is no experiment so far as we are concerned. We wrote about it in this JOURNAL and used it, in the year 1900. Owing to the difficulty of getting suitable tins to put up Napthalene we are now sending it out wrapped in Paraffin paper which preserves it all right, and for the convenience of those wishing to test it, we will now send 2 oz. packets for 2d. and 4 oz. packets for 3d.

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ORANGES.—Immediately after the storm, fortunately, the buying of oranges commenced in Manchester; nearly ripe fruit was wanted for the American market, and again fortunately, there was a very early crop in a few districts, especially Southern Manchester—a district that has practically been out of the market for a good many years. Enough ripe fruit, however, could not be got to satisfy the large orders.

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WEATHER.—There are always some compensations. One cheerful optimist, who suffered greatly from drought 3 years in succession, and could not get his ponds, so long dry, to hold water, said to us “Well one can’t have everything. My bananas are gone but my ponds are running over, and my cattle have more grass than they can tackle.”

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DIVERSIFICATION.—The lessons of years point to the wisdom of reasonable diversification of crops. Through generations of experience the small settler learned this and although he does jumble crops too closely together, he is all for having plenty of different crops. Of course one must have exportable crops and every one should have some if their conditions allow of growing them.

We have continually said that bananas, while a useful quick growing crop, should only be made the medium for growing cocoa and coconuts in the lowlands, and coffee in the hills, and with their aid (bananas) we can raise these other staple crops cheaper than anywhere else. The tendency however, is to be, as it were, fascinated, or hallucinated, by the quick turn over of money with bananas, and neglect to plant what should be the principal crop.

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SEED CORN.—We arrange beforehand to get supplies of well grown and carefully selected seed corn, but sometimes we get disappointed with the quality when delivered and we reject some lots and have then to make other arrangements which are not what satisfy us, but are the best under the circumstances. One trouble at this season is that the spring planted crop is not yet fit when planting is wanted to be done in the middle of August. The growing of seed corn is, or should be, a special business. The taking of the best grains from the best cobs out of a good field planted with selected seed is a step in advance, but there is no saying that these best cobs have not been fertilized from the worst stalks in the field. A three chain experiment was planted with 3 different kinds of seed corn, 6 inches in the row and 5ft. between rows; this gave opportunity to chop out the weakest stalks that came up. Later on others of the least vigorous stalks were cut out. Later again those that did not flag early and profusely were cut out until it came that the only stalks left were thick and strong, some 3ft. apart, few closer than 2ft. Every corn cob must have been fertilized from a strong stalk. Still the cobs showed a great variety of types.

We picked from a field 5 cobs all different in colour, varying from clear yellow to nearly red, yet all planted from selected corn, half yellow half red in appearance. Of course the cobs from which the seed planted was taken, must have been pollinated from many different types. It would require a course of rigid selection now to get a uniform good type.

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CORN.—A correspondent writes us as follows:—

"I send herewith a sample of the corn and not the worst although not the best of some grown from your hybridized seed.

I must say however that generally speaking the people who got seeds from you are well satisfied and the man who grew this did not grumble; still it is not very satisfactory, is it?"

This was a very poor looking cob, the grains being nearly pure yellow dent corn. We do not say and have never held that yellow corn will yield equally good results everywhere; we have deprecated any *boundless* faith in "American" yellow dent corn as being better than the ordinary Jamaica red corn when the seed of the latter is carefully selected over several crops. The yellow requires better soil and better treatment than our red corn or half yellow and half red to produce the results expected from it. The point of the above letter, however, would seem to indicate that no matter what kind of soil, what kind of cultivation, what weather, what damage by pests, wind, stock, etc., the cobs grown from seed corn supplied by us ought to give large and fine cobs. Surely this is too much faith in good seed corn.

SCHOOL GARDEN COMPETITIONS.—Owing to interruption of plans through the storm and the consequent delay in field and garden operations in different districts, the date of closing for entries in the School Garden Competitions is extended to the 30th September.

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TOBACCO.—There has been a great falling off in the demand for tobacco throughout the world caused by the war, and more than all in the consumption of the most expensive form of tobacco, cigars.

The district of Vuelta Abaja in North Cuba, the greatest cigar producing part of the world has suffered greatly and planters there have reduced their fields and are taking up other cultivations, early vegetables, etc.

Rhodesia, a new country, being filled up with British settlers, which had taken comparatively few years to work up a very large tobacco industry has found the growing of Maize more profitable and has dropped tobacco to a large extent.

Jamaica, so little, and yet with a cigar and cigarette industry of great account to planters in certain select districts, has likewise to reduce its production of tobacco. In the chief cigar leaf growing districts every grower has reduced his acreage: the two largest manufacturing concerns which also grow a considerable quantity of their own leaf have given up most of their land. There is on hand at present nearly two years crop of leaf. Tobacco growers should not be too discouraged; the more other parts of the world reduce their acreage or throw up altogether the more we should stick to our fields; certainly reduce acreage but keep on growing some of the best cigar leaf.

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WAR GIFTS.

We shipped per the Elders & Fyffes s.s. "Cavina" on Monday, the 30th August, the following war gifts. All those interested please note that we try to arrange shipments by the Elders & Fyffes steamers every fortnight:

SHIPMENT PER S.S. "CAVINA" AUGUST 30TH, 1915.

I.—GENERAL GIFTS.—

A. *Preserves.*

DONOR AND ADDRESS.	GIFT. Kind.	Quantity.
Mrs. Isaacs, Bleak House, Mandeville	Guava Jelly	2 tins equal 20 lbs.
Mrs. Gosset, Hagley Gap	do	1 tin equal 10 "
Miss K. Fisher, The Hill, Mandeville	do	2 tins equal 20 "
Miss I. Branze, Richmond Park, Spaldings	do	2 tins equal 20 "
	Total	7 tins equal 70 lbs.

B. *Banana Figs.*—

J. F. & J. S. Thompson, Falmouth	Banana Figs	3 cases, 168 lbs. (balance of a ton paid for by the donor and supplied by J. W. Pat- tinson, Gayle.)
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C. Citrus Fruit.—

	No. of Boxes Oranges.	No. of Boxes Grapefruit.
Col. Moulton-Barrett, Rio Hoe, Moneague	7	5
Rev. H. B. Wolcott, Richmond	—	2
Messrs. Ronaldson and Thursfield, Stone's Hope, Newport	—	12
Mrs. H. E. Crum Ewing, Knockpatrick Mandeville	3	—
Miss Ann Bunthorne, Mandeville	1	—
Mrs. W. W. Wynne, Brokenhurst, Mandeville	10	5
A. C. Westmoreland, Annotto Bay M	—	29
Total	21	53

D. Walking Sticks.—

28 bundels containing 1,438 walking sticks, consigned to "Tit Bits," had to be held over for the shipment a fortnight's time, owing to lack of space on the steamer. A list of the donors of these will be published with the next shipment of War Gifts.

II.—INDIVIDUAL GIFTS TO SOLDIERS, HOSPITALS, ETC.—

DONOR AND ADDRESS.	GIFT.	ADDRESSEE.
Mrs. J. Briscoe, Montpelier	1 case Clothing for Belgians	Mons. Ed. Pollet, 40 Finsbury Square, London, E.C
Mrs. J. Briscoe, Montpelier	1 case Socks for Soldiers	Hon. Secty. Friary Court, St. James' Palace, London, S.W. Q. M. N. G.
R. & C. J. Hay, Kingston	400 Cheroots	Lt. Simon Fraser, 9th. Royal Scots Territorials, "D" Coy., Brit. Exped. Force, France.
Mrs. Clarke, Kingston	1 box Miscellaneous Preserves	Pte. A. R. Clarke, 73, 2nd. Signal Corps, Canadian Exped. Force, Shorncliffe.
Mrs. F. G. Rouse, Kingston	1 box Miscellaneous Preserves	Pte. E. R. Rouse, 115668, M.T.A.S.C., Guards, Div. F. A. W. U., c/o H. Q. L. Henriques, 21 Finsbury Pavement, London E.C.
Rev. J. H. Chandler, Highgate	1 box Preserves and Cigars	Mr. J. Chandler, No. 4 Coy., Inns of Court, O.T. C., Berkhamstead.
Mrs. Milne, Kingston	1 box Miscellaneous Preserves	Pte. A. C. Milne, 49468, 101 Squadron, Remounts Depot (Canadians) British Exped. Force.
J. W. Macgregor, Mandeville	1 box Guava Jelly	Lt. H. S. P. Symonds, 7th London Regiment, 47th London Division, British Exped. Force, France.
Storks deRoux, May Pen	1 box Miscellaneous Preserves	Trooper Louis deRoux, No. 1691, 2nd. King Edward's Horse, 10th Cavalry Reserve, Beresford Barracks, Curragh Camp, Ireland.
Hon. J. R. Williams, Bethel Town	1 box Miscellaneous Preserves	Miss Evelyn Williams, c/o The Matron, Oldway Hospital, Paignton, Devon.
Miss Daisy Verley, Cross Roads, Kingston	1 box Oranges	Pte. L. St. J. Sanguinetti, 4/3 Battalion, Royal Fusiliers.
Miss Daisy Verley, Cross Roads, Kingston	do	Capt. N. R. Sanguinetti, 222nd Coy. R.E., Chatham.

M ss Daisy Verley, Cross Roads, Kingston	do	Midshipman Neville Sanguinetti, R.N.R., H.M.S. "Marlborough."
E. Haughton Sanguinetti, Kingston	do	Surgeon Harry Harty, H.M.S. "Marlborough."
E. Haughton Sanguinetti, Kingston	do	Midshipman Roger Gibb, R.N., H.M.S. "Zealandia"
E. Haughton Sanguinetti, Kingston	do	W. E. R. Martin, R.N., Fleet Paymaster, Principal Naval Transport Officer, Southampton.
R. S. Haughton, Kingston	1 Box Grapefruit & 1 Box Oranges	Lt. Haughton, Flanders.
A. C. Westmoreland, Annotto Bay	2 Boxes Grapefruit	2nd Lt. O. H. Keeling, Stanford Wood, Bradfield, Berkshire.
Mrs. H. E. Crum Ewing, Mandeville	1 Box Oranges	Barra House Hospital, Largs, Ayrshire, Scotland.
Mrs. H. E. Crum Ewing, Mandeville	2 Boxes Oranges	Bevan Royal Military Hospital, Sandgate.

The following War Gifts were sent to be shipped per the S.S. "Coronado" on the 16th August, but, owing to the storm on the 12th and 13th of that month, Mr. Roxburgh's lot was delayed in arriving until late on Saturday evening, and the others were not in good order, and the steamer leaving early on the Monday morning following. They were therefore disposed of as below.

Donor & Address.	Gift.	Remarks.
Adam Roxburgh, Walkerswood	15 Boxes Oranges 8 „ Grapefruit 2 „ Mixed Fruit	15 Boxes Oranges sold* 4 „ Grapefruit sold 2 „ Mixed Fruit sold* 4 „ Grape Fruit sent to H.M.S. 'Isis'
J. W. McLean, Lloyds, Yallahs	4 Barrels Oranges	Repacked.. 1 Box Oranges sold* 2 Boxes and ½ barrel sent to H.M.S. "Isis"
Miss L. Abrahams, Chapelton	1 Barrel Lemons and Limes	Sent to H.M.S. "Isis."

* The proceeds credited to the War Gift Account.

BRANCH NOTES.

CHESTERFIELD (St. Mary.)—A special meeting was held on Tuesday, 27th July, in the Schoolroom. There were present: Messrs. C. G. Hunt, in the Chair, W. Cradwick and Watts, (Instructors,) eleven members, three visitors and the Secretary. There was some talk about the non-payment of subscriptions by some members. It was moved and seconded that steps be taken to ensure the re-appointment of C. T. Roberts as Authorized Person for the district. The question of the buying and selling of cocoa was considered at some length, but the matter was left for further consideration at the next meeting, when definite resolutions would be formed and sent to the J.A.S. Some questions were put to the Instructor regarding the result of the recent prize-holdings competition. He explained the reason why some competitors did not win prizes. A scheme for cocoa competition was submitted by the Instructor, and he informed the members that this would take place early in 1916. Attention was directed to the various points for which marks would be awarded, and the members were encouraged to enter. There was a good deal of discussion over Road No. 50 of the Annotto Bay division, which passes over the Castleton fording and through the district of Chesterfield. A committee with power to add to their number was appointed. This committee has specific duties given to it to perform in connection with the road. They were instructed to go over the road carefully, noting every grade, and every curve, and then forward another strpetition to the Párochial Board, to show the necessity of raising at least three quarters of a mile of this road. The Instructor intimated his intention of attending the September meeting of the branch.

A. VIVIAN HAGUES, Secretary.

MT. CARMEL (Clarendon).—On the 2nd August, 1915, the Society met. There were present, the Rev. R. E. Philips, President; the Instructor, the Secretary, several other members and many visitors. The Instructor addressed the meeting on Cocoa. The points urged were the planting, pruning and caring of the product. Dealing with *planting*, he urged the members to make use of the seedlings from the Danks Nursery. The young plants should be set out 12ft. apart with no other trees between them. This allows for ease in controlling cases of disease. *Pruning* is a necessity as it advances the bearing capacity of the trees. *Curing* should be even; and patience exercised in waiting until the seeds are properly dry. The seeds to be fermented should be carefully chosen, while the fermentation should not be long. A vote of thanks was accorded the Instructor.

T. S. ROBINSON, Secretary.

TROY (Trelawny).—The regular monthly meeting was held in the Troy School Room on the 3rd of August, 1915. There were present besides the Chairman, Vice-Chairman, Secretary and Assistant Secretary, 11 ordinary members and Instructors E. Arnett and M. Rennie. The Secretary handed in 44/- collected from the members to the Contingent Fund; the Vice-Chairman also handed in 5/- as his subscription and a further sum of 2/6 was also subscribed by 3 other members. The Instructor suggested that it would be a good idea if all the branches in the Parish would unite and send a man from Trelawny to join Lord Kitchener's army. He promised to find out the cost of sending a man and to suggest the idea to the other branches. The Secretary gave notice that at the next meeting he will move that a penny bank be established in connection with this branch. The Instructor encouraged the idea. The Chairman and Assistant Secretary also spoke encouragingly. The Chairman introduced the subject of providing walking sticks for lame soldiers, asking the members to provide some. The Instructor gave a very instructive address on plants disease and insect pests, and introduced Cooper's Cattle Dip and Abol Syringe, promising to give a demonstration in the use thereof at the next morning. Mr. Rennie's intended address on small stock was deferred for next meeting on account of the lateness of the hour.

T. PINNOCK, Secretary.

WHITEHOUSE (Westmoreland).—A meeting was held on Tuesday, the 3rd August, at 5 p.m. Members present, eighteen, Instructor Somerville, the Secretary and several visitors. Matters dealt with, viz.: (a) Caterpillars attacking young crops. Instructor advises planting early to secure good growth before the appearance of the pests. (b) Receipts, acknowledging 15/6 as second contribution to War Fund. (c) Mr. Morris' letter *re* Jamaica taking its share in the war. Meeting agreed to call a public meeting on Wednesday, 18th, and Secretary instructed to invite Custos Vickers and leading men to give addresses. (d) Report of delegate to the Half-Yearly Meeting was received and a hearty vote of thanks accorded him for same. (e) The Instructor lectured on Cassava and potatoes, showing their food value, the rich meals they give, and the profit gained in cultivating them on systematic principles. He strongly urged members to plant largely. The necessity of forming an Agricultural Co-operative Credit Society next had attention. The Instructor read extracts dealing with such a Society and other members joined in a discussion on the objects and aims, etc. It was finally agreed to place the matter on the Agenda for our September meeting, when rules, etc., will be submitted and the Society formed. Votes of thanks were accorded the Instructor.

M. Hewitt, Secretary.

CENTRAL ST. MARY (St. Mary).—The regular monthly meeting was held in the Clonmel Schoolroom on the 5th August. There were present: Messrs. J. A. Banks, President, the Secretary and nine other members. The Authorized Persons of the Branch: Messrs. J. Gordon, J. N. Thompson, Jas. McGibbon (jr.) and Philip Livingstone, gave reports on their work as Authorized Persons. A letter was read from Wm. Cradwick apprising the branch of the free distribution of cocoa seedlings at the Castleton Gardens, and advising that all who are wishful of planting in the approaching autumn should make an effort to secure as many as they required. Mr. C. J. Marzink read an interesting paper on 'Cattle rearing' for which a vote of thanks was accorded him. Mr. Watts, Asst. Instructor, also gave an instructive lecture on cane-growing for which a vote of thanks was also accorded him. Mr. A. M. Webb became a member.

M. L. McLEAN, Secretary.

GIBRALTAR (St. Ann).—The regular meeting was held on the 6th August. 26 members several visitors E. Arnett, Esq., Instructor, and M. Rennie, Esq., Asst. Instructor, were present. Mr. R. S. Barnett, President, occupied the Chair. Correspondence were read and dealt with. With regard to the loss sustained by Mr. Henry Case, a member, through the destruction of his house by fire, the Instructor

suggested that the matter be dealt with by the Managing Committee with a view of recommending some assistance at the next meeting. The Instructor and Secretary both spoke of the members' obligation with regard to the fees. The subject of walking sticks for the wounded soldiers was brought up by the Instructor, and all present were unanimous in bringing in sticks on the first Thursday in September. Two new members were admitted.

J. B. MORRISON, Secretary.

COMFORT HALL (St. Elizabeth.)—The bi-monthly meeting was held on Friday, 6th August, in the Comfort Hall School Room. There were present: Messrs. D. S. Williams, Presiding; 22 members, the Secretary and many visitors, among whom were some ladies. As arising out of the minutes a full discussion on the working of a penny bank in connection with the Branch took place. Mr. S. Glanville and a few others were of the opinion that the Branch should not interfere with the management of such a business. The Rev. H. G. James and others were in favour of it. The result of the discussion went in favour of the formation of the Penny Bank in connection with the Comfort Hall Mission Station under the management of the Rev. H. G. James. Mr. George Waite, who was present, and lives at the district of Breeze Hole, was nominated as an Authorized Person. The Secretary having received no report from the Authorized Person Ellis, of Cane Wood, was requested to write to him again on the necessity of the Branch getting reports from him regularly or else he must send in his resignation. Mr. Thos. W. Williams reported all fair. Mr. D. S. Williams briefly stated that he attended the Half-Yearly Meeting as delegate. The meeting was largely attended. Much business was done. The question of a market for Jamaica corn was fully gone into, but unless the corn growers will see to the curing of the corn better, there will never be a chance for a better market than at present. He referred to the making of corn meal, and made mention of the different kinds of corn mills Mr. Barclay showed them. It was his opinion that it would be much to the advantage of members if by co-operation one of those mills could be purchased by the Branch. Mr. Powell, the Agricultural Instructor, spoke on the different ways it is possible to preserve corn from weevils, but whatever may be used, thorough and constant sunning is an indispensable factor in the safe keeping of corn. The members of Agricultural Societies should use their best endeavours to stop the evil of selling partially dried corn. The meeting adjourned till 8th October next at 1 p.m. The Committee for arrangement *re* Local Show met for business immediately after the rising of the regular meeting. Mr. S. Glanville was asked to be Chairman of the Committee. Business carried through then was: The Show be held on 2nd December of this year D.V.; that the Secretary write to the Rev. H. G. James *re* the use of the Comfort Hall Church Commons on the date; that the *Gleaner* be asked for the use of its much read paper as the organ for acknowledging donations for the Show. Arrangement was made for the next Committee Meeting on 20th inst., when more details will be considered.

R. A. MUNROE, Secretary.

PEDRO (St. Ann's).—Meeting was held in the Schoolroom, Waltham, on the 9th August, at 8 p.m. Present, 27 members, the Secretary and others. Mr. July Simpson presided. The Chairman dwelt on the good the Society had done and cited a few concrete results, to wit: Grindstone, Corn Mill, Post Office and Telephone, opening of Crown Lands; these fully justified its existence. He pointed out the necessity there was for paying in subscriptions at once, and what would be the result if this was not done. There was marked loss of interest in the Society, traceable to a variety of causes, but the inability of the Instructor to keep his appointments at their meetings and the absence of report of meetings from the JOURNALS, were dwelt on by all those who supported the Chairman. The following persons were elected to serve as officers for the ensuing year: Rev. Thos. Whitfield, President; Messrs. July Simpson, M. A. Harvey, and Chas. Douce, Vice-Presidents; W. J. Francis, Secretary; Mrs. J. A. Francis, Treasurer; Mr. M. A. Harvey, Reporting Secretary. The Rules were revised and amended where necessary. The Society recommends the following as Authorized Persons: Charles A. Beckford, Drummoreland District; Johnnie Walker, York District; Albert Walker, Dromilly District. An interesting agenda, including a debate, has been fixed for the next meeting on the 23rd August: "The Goat or the Pig" which pays better in these districts. The leaders are lively men and a profitable time is anticipated. There were a number of complaints about the non-receipt of JOURNALS by members, yet the Post Master declares that some members neglect to take their copies.

M. A. HARVEY, Cor. Secretary.

TRYALL HILL (St. Mary).—On the 10/8/15, regular monthly meeting was held. Present: Mr. John A. Grant, V.P., in the Chair; four members, and the Secretary. Note of absence was received from the President. The following questions were asked by Mr. D. N. Roper: Number of Authorized Persons in the Long Road division? Answer: viz., Messrs. E. Walker, F. Walters and Espeut. Has Mr. Walters done any work since his appointment? Answer: Yes. Monthly report from Authorized Person Walter: He was called by Mr. Terril June 1915, to arrest a man for the stealing of cocoa pods; culprit was dismissed. He also stated that he has purchased a Badge in place of the one lost. Secretary was asked to write to members who have not paid their dues. Letter from Instructor was read. Members were very pleased with the offer of cocoa seedlings, but regret very much that for the want of land-room they were not in a position to avail themselves of the opportunity. One member gave an order for 1,000. It is hoped that a few others will be in want. Secretary was asked to acquaint absent members about the cocoa seedlings. The Half-Yearly report from the Delegate was well received. The members present were very pleased to know that steps are being taken to make better the peasantry's condition especially in regard to land, and hopes that every district would see its needs and place them before the public in the right way from time to time, until the desired end be obtained. The Society welcomed the idea in regard to the necessary change of the scales at present used. Branch satisfied with the decision arrived at in respect to cocoa pods, especially in the case where it shall be a breach of the law in the near future to purchase or sell unripe cocoa pods. The amount of 2/- was handed over to the Treasurer. The meeting stood adjourned until the second Tuesday in September. A. A. CONSTABLE, Secretary.

UPPER ST. JOHN'S (St. Catherine).—The usual monthly meeting was held on Tuesday evening, 11th August. There were present the President, the Instructor Mr. H. L. Mossman and Secretary, nineteen members, and three visitors. The following matters arising out of the minutes were dealt with: The Instructor informed the meeting that he is making arrangements to get up the cane tops for the members who desire them. As soon as they are obtained, information will be sent to the Secretary. Experimental Plot.—Mr. O. P. Jones and others consented to lead in the matter. The size of the Plot is to be about two square chains. The President promised the spot. Correspondence was dealt with. The delegate then gave his report of the Half-Yearly Meeting for which he was heartily thanked. A warm and lengthy discussion on Praedial Larceny followed. This evil is rampant in some of the districts, and the Authorized Persons seem to be inactive. Some will not attend the meetings, nor give any report of their work from time to time. A resolution was then passed: That any Authorized Person who is absent from the meetings on three consecutive occasions, will be dealt with by the Branch, and his name will be submitted to the Parent Society to be struck off the list. Mr. Alfred Brown reported that he was watchful, but praedial larceny is on the decrease in his district. Mr. Green's motion *re* Loans, now came up for discussion. Much was gained on the subject from the delegate's report, so it was agreed on that the matter remain as it is. Mr. Alfred Brown wanted to know: 1. How to grow ginger, and Mr. John Harrison: The cause of decay on coconut leaves. The Instructor answered suitably. Subscriptions were received.

E. THOS. HAMILTON, Secretary.

ENFIELD (St. Mary).—The regular monthly meeting was held in the Schoolroom on the 11th August, 1915. There were present: Rev. W. S. Taylor, President; 3 Vice-Presidents, the Treasurer, the Secretary and 11 members. The President gave the report of his visit to the Half-Yearly meeting, stating that nothing decisive has been done *re* the Produce Protection Law, as the Law is in the hands of the Attorney General for revision. The President also read a communication from Mr. Cradwick, advising him that good cocoa seedlings can be had at Castleton Gardens free to any member of Branch Societies, who need them. Final arrangements were made for carrying on the picnic in connection with the Branch, on the 12th instant. A few of those who were present, and who have gone abroad, were asked to give their experiences on the state of things in this country as compared with the foreign countries. All spoke favourably of Jamaica, and more especially of the great protection we receive under the British Flag. Notes: Again we are face to face with great distress into which we have been suddenly plunged by the hurricane of the 12th inst. The small settlers of this district were just beginning to rejoice, as they were able, to sell a few bunches of their bananas, which had been spoiling in abundance a fortnight before the crash came. Now everything has been swept away.

J. Z. JOHNSON, Secretary.

The Journal

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

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OCTOBER, 1915.

No. 10.

BOARD OF MANAGEMENT.

The usual monthly Meeting of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 11 North Parade, Kingston, on Thursday, 16th September, 1915, at 11.40 a.m. Present: His Excellency Sir Wm. H. Manning, K.C.M.G., C.B., (presiding), Sir Jno. Pringle, K.C.M.G., Hons. P. C. Cork, C.M.G., D. Campbell, L. J. Bertram, C.M.G., R. P. Simmonds and S. S. Stedman; Messrs. Robt. Craig, A. W. Farquharson, E. W. Muirhead, A. C. L. Martin, Conrad Watson, Rev. W. T. Graham and the Secretary, Jno. Barclay.

Apologies for absence were submitted from the Hons. George McGrath and J. R. Williams, Messrs. H. Q. Levy and Adam Roxburgh.

The Minutes of the previous Meeting having been printed and circulated, were taken as read and confirmed.

Notices of Motions.—The Rev. Mr. Graham gave notice of the following motions:—

(1) That a place be provided on the Agenda for Questions at an early stage of the Meetings of the Board.

(2) That at the next Meeting of the Board I will ask that a Special Committee of this Board be appointed to provide a proper scheme for the insurance of crops against loss by disaster.

Letter from Mr. A. W. Farquharson re his election.—Letter from Mr. A. W. Farquharson was submitted acknowledging receipt of the letter *re* his election to the Board of Management and stating that he should be glad to act, and also act as a member of the Staple and Minor Products Committee in place of Mr. Archibald Spooner, resigned.

Free Grants of Seeds.—Applications from 5 Branch Societies for grants of seeds either free or at half price, were submitted.

The Secretary said that it had been usual after a storm which had caused loss to crops—especially bananas—for grants of seeds to be made, particularly peas and beans of various kinds and vegetable seeds, so that all the open spaces between the bananas could be planted.

Mr. Stedman said he noticed that nearly all these applications were from districts that had not been anything like so hard hit as the Branches in his district of Portland. He noticed also from the reports of the Branches in Portland and most of the other Branches throughout the country, that they had determined under the present circumstances not to make any applications whatever. He thought that these applications should not be granted.

The Board directed the Secretary to reply that applications for seeds free or at half price could not be entertained at this time.

Co-operative Scheme for Western St. Ann.—The Secretary said that in January last a Special Committee had been appointed with the object of arranging for something to be done in a practical way in the co-operation curing and marketing of produce about which so much had been talked and written during recent years. The matter had been in hand all this time, but was now in concrete form and they were ready to start. The district in which it was proposed to make a start and where the circumstances were now favourable for a beginning, was Western St. Ann, and the scheme would be in charge of Mr. Arnett the Agricultural Instructor there, who had taken great interest in co-operation, and who in 1911 had made a special visit to Ireland at the direction of the Board to study co-operation in agriculture in that country. It was meant to be a self-supporting scheme, but it was felt that some backing up was needed to be given by the Parent Society at first. All that was asked for was an advance of £15 per annum for three years in case this was needed. The Instructors Committee had also considered the scheme and had given Mr. Arnett permission to engage in it, being satisfied that such a practical attempt to improve the methods of curing and marketing produce in bulk, was a necessary outcome of his campaign urging co-operative methods during the last few years.

The Board unanimously agreed to give the support to the scheme asked for.

Competitions.—The Secretary said that Mr. L. A. Wates, the Agricultural Instructor for E. Portland and E. St. Thomas, had had two Competitions in hand for his district—(a) Cottage Holdings in Portland, and (b) a local Cocoa Growing Competition in E. Portland and E. St. Thomas; but owing principally to the effects of the storm, he (Mr. Wates) advised that these Competitions might be postponed. The prizes for the Cottage Holdings Competition had been provided by His Excellency the Governor. The prizes for the Cocoa Competition had been raised locally, and the Board had no financial interest in either.

The President said it was regrettable that the Cottage Holdings Competition had to be postponed, but he would still give the £5 he had promised, and he would ask the member of the Board for that district, to utilize the amount to the best advantage.

It was agreed to postpone the Competitions until a more favourable period.

War Gifts.—The Secretary said that further consignments consisting of Citrus Fruit, Preserves, Cigarettes, Clothing, etc., had been forwarded, addressed as usual to the Crown Agents for the Colonies, London; also 29 bundles containing 1,446 Walking Sticks sent to "Tit Bits." He submitted letters of acknowledgment from the C.S.O. as follows:—

No. 11076-12818 of the 4th September, acknowledging advice of 102 packages of War Gifts shipped by the S.S. "Cavina" on the 30th of August.

No. 11037-12335 of the 3rd September transmitting copy of letter from the Secretary of the West India Committee stating that the War Gifts shipped by the S.S. "Manzanares" in July had arrived in good condition and had been distributed as follows:—

60 boxes of Oranges to the Military Hospitals.

10 boxes of Grapefruit to the Grand Fleet.

18 boxes of Preserves, and 1 cask of Honey, some sent to Hospitals and some to the British Red Cross.

9 cases of Banana Figs, despatched to the Front for the use of the soldiers.

The Secretary also submitted letter from the Secretary of the West India Committee with regard to Individual Gifts. (This is published on another page of this JOURNAL.)

The Secretary said that it would be quite easy to send gifts through Agencies in London, but people here liked to send Jamaica specialities. He had communicated with Mr. Aspinall to try and see if gifts of Jamaica products for individual soldiers, sailors, and prisoners of war, could be sent in bulk through some agency in London and distributed from there. Of course those who sent the gifts would require to pay the cost.

The Secretary also submitted the following further letters from the Secretary of the West India Committee:—

13th August, 1915.

"I beg to acknowledge the receipt of your letter 1781 of the 19th ult., transmitting a Resolution of thanks to the West India Committee for their services in connection with the distribution of the War Gifts presented by your Society to our wounded soldiers and sailors and the Fleet.

This Resolution shall be laid before the next Meeting of my Executive. Meanwhile I beg to thank you very cordially for associating my name with this expression of thanks; but at the same time I feel that any assistance which I may have been able to render is infinitesimal compared with that rendered by my staff."

There was also a letter from Mr. Aspinall *re* Pimento which he would like to read:—

13th August, 1915.

"I have a letter from Colonel Moulton-Barrett telling me that Pimento was largely used during the Crimean War as a heating factor both in the food of the soldiers during the winter and in a powdered form in their boots when employed in the trenches. Do you think that you could send me a fair quantity which I could forward to the War Office with the request that it might be given a trial, say 5 or 10lbs. weight? Please let me know if you can do this. The experiment would be interesting."

Mr. Martin said he would be glad to send a bag of Pimento for experiment.

Swine Fever.—The Secretary said that on the 6th of September, the Instructor for S.E. St. Elizabeth, Mr. E. J. Smith, had advised him that Swine Fever was raging in some of the districts there, and he had immediately advised the Government who had sent the Government Veterinary Surgeon down to the district. He had not however, yet heard the results of his investigation.

Cassareep.—The Secretary said that a few months before he had been directed by the Board to get a sample of Cassareep from Demerara, but owing to there being no direct communication it had taken a long time for the Cassareep to arrive. It had been badly packed and the bottles were broken. He however submitted most of the contents of one bottle.

He was directed to send a sample of this to Mrs. Fray, of Spring Plain, Milk River, who was interested in putting up this product here in a marketable form to be used as sauce.

"Authorized Persons."—The Secretary submitted Return of Arrests made by the "Authorized Persons" during the Quarter ended 30th June, 1915, which he had received from the Inspector General. (See pages 379, 380.)

The Secretary asked what was the position with regard to the "Authorized Persons" when a Branch became defunct. There was one Branch defunct which had several "Authorized Persons" connected with it. He was directed to advise the "Authorized Persons" that they should connect themselves to the nearest Branch Society, and also to ask the Attorney General for his opinion.

Growing of China or Dwarf Bananas.—The Secretary said that he had submitted to the Staple and Minor Products Committee a Minute with regard to this variety of bananas which was practically storm proof. The matter of growing them had been discussed when the Elders & Fyffes steamers had started. The Company had promised to take these bananas, but it was found that they did not carry as well as the Martinique Bananas. Since then, however, the fruit carrying accommodation on board these steamers had been greatly improved, and no doubt the Company had now more experience of shipping fruit taking 14 days. He did not mean to suggest that these bananas should take the place of the Martinique Bananas, but if it was possible to ship to the United Kingdom it might be prudent for each grower in Jamaica to have a small acreage to ship a certain proportion, so that in case of storm at least a small export would be kept up. He had written to the Manager of the United Fruit Company on the subject: he only brought up the matter for the sake of discussion.

Applications for Affiliation.—The Secretary again submitted application for affiliation from Wallingford District near Guys Hill, which had been held over pending enquiry by him as to whether the new Society would interfere with the membership of other Branches around. The Secretary stated that only one member of this new Society was a member of any other Branch. Affiliation was therefore granted.

Application for affiliation from a new local Society in Highgate district was submitted. This application stated that although there were Branches from 4 to 7 miles round about, only one member of the new Society had been a member of any Branch. Affiliation was granted.

Instructors Reports, etc.—The Instructors Reports and Itineraries for the month of August were submitted and directed to be circulated to the Instructors Committee as usual.

The Secretary said he had a report to make from the Instructors Committee: Mr. C. T. Watts who had been appointed on probation as an Assistant to Mr. W. Cradwick in St. Mary, was not found likely to make a good all round Instructor, although he was very capable in some directions, especially in work of a mechanical nature. The Instructors Committee had therefore, after due consideration, given him three months notice from the 1st of September and were allowing Mr. Watts to leave at an early date for New York, as it was his intention (if his father gave him the necessary permission) to proceed to the United Kingdom to find employment in some service of the war.

Statement of Accounts.—Statement of Accounts was tabled.

Mr. Stedman asked that the Statement of Accounts be tabled early at the Meetings in future, so that it could be passed around. This was agreed to.

New Members.—The following new members were elected:—

George Barnard, Park Estate, Choiseul, St. Lucia.

C. Deacon, Prospect Dennerly, St. Lucia.

Verner Green, Courts Office, Montego Bay.

Eustace Ramsey, Montego Bay.

V. J. Rennie, Cross Roads.

The meeting adjourned until 23rd October, 1915.

RETURN OF ARRESTS MADE BY "AUTHORIZED PERSONS" UNDER THE PRAEDIAL LARCENY LAW, DURING THE QUARTER
ENDED 30TH JUNE, 1915.

Parish.	Names of "Authorized Persons" who prosecuted.	Name of Defendant.	Offence for which prosecuted.	Remarks.
Kingston	Nil	Nil	Nil	Nil
St. Andrew	William Bonfield	Charles Thomas	Unlawful possession of Corn	4 months H. L. D. P.
do	Amos J. Smith	Melbourne N. Notice	" " Cocoa Pods	Sent to Industrial School
St. Thomas	Beckford Henry	Charles Watson	" " Bananas & Plantains	60 days H. L. D. P.
do	John Nathan	Estella Campbell	" " Bananas & Cocoa	Bound over
Portland	Joseph Redwood	Henry Wilson	Praedial Larceny of Bananas	do
do	James Reid	Claudius Neufville	Unlawful possession of Yam heads	3 weeks H. L. D. P.
do	Walter Beckford	George McFarlane	" " Coconuts	Discharged
do	Adam Samuels	Alexander Price	" " Bananas	1 day imprisonment
do	James Burgess	Justin Anderson	" " Cocoa pods	Discharged
do	Eustace Jackson	William Smith	" " do	do
do	Charles Brown	Gangadia (Coolie)	" " do	7 days H. L. Lock-up
do	Adam Samuels	Samuel Spence	" " Yam heads	Bailed
do	Adam Samuels	Louisa Barnes	" " do	Bailed
do	David Moodie	Rebecca Hall	" " Cocoa pods	Discharged
St. Mary	Robert Forsythe	Advira Williams	" " Yams	48 hours H. L. G. P.
do	Robert Forsythe	Georgina Ellis	" " do	do
do	Robert Forsythe	William N. Thomas	" " Bananas	7 days H. L. Lock-up
do	Ernest Fraser	James Brown	" " Coconuts	3 months H. L. D. P.
do	Ernest Fraser	Robert Williams	" " do	Discharged
do	Euphrates Walker	Uriah Livingston	" " Cocoa pods	do
do	Euphrates Walker	John Wallace	" " do	do
do	George Espute	Enos Roper	" " do	7 days H. L. Lock-up
do	Joseph Stewart	Emma Wellesley	Unlawful possession of Cocoa pods	Discharged
do	David Oliver	George Hendricks	" " do	do
do	Charles Morrison	William Heron	" " do	7 days H. L. Lock-up
do	Jacob Pownal	William Cookhorn	" " Yams	4 months H. L. D. P.

RETURN OF ARRESTS MADE BY "AUTHORIZED PERSONS" UNDER THE PRÆDIAL LARCENY LAW, DURING THE QUARTER

ENDING 20TH JUN&, 1915.

Parish.	Names of "Authorized Persons" who prosecuted.	Name of Defendant.	Offence for which prosecuted.	Remarks.
St. Mary	Jacob Pownal	Rose Ann Smikle	Unlawful possession of Yams	Discharged
do	Jacob Pownal	Clarence Clunis	" " " Potatoes	7 days H. L. Lock-up
do	Ashton Simmonds	Princess Robinson	" " " Cocoa pods	5 months H. L. G. P.
do	Charles Roberts	Lillian Gohern	" " " do	Discharged
do	Charles Thomas	Esau Scarlett	" " " do	3 strokes with tamarind switches
do	Elisha Harris	Levi Robinson	" " " do	30 days H. L. D. P.
do	Joseph Danvers	Lancelot Daley	" " " Cocoa	Discharged
do	Amos Duncan	Jeremiah Hunter	" " " Cocoa	Discharged
do	Joseph Duncan	Alfred Livingston	" " " Cocoa pods	do
do	James Alford	Richard Spencer	" " " Cured cocoa	7 days H. L. Lock-up
do	Nathaniel Grant	Eustace Byfield	" " " Cocoa pods	Discharged
do	Alexander Davidson	William Heron	" " " Bananas	30 days H. L. D. P.
do	Charles G. Evans	Lawrence Miller	" " " Nil	Nil
Saint Ann	Solomon Marrett	Sophia Vernon	Unlawful possession of Sugar Canes	7 days H. L. Lock-up
Trelawny	Nil	Nil	Nil	Nil
St. James	Theophilus Hale	John Bowen	Unlawful possession of sugar Canes	14 days H. L. Lock-up
Hanover	Nil	Nil	Nil	Nil
Westmoreland	Walter Ford	Edward Powell	Unlawful possession of Cassava	6 strokes with Tamarind switches
St. Elizabeth	John Thompson	Matilda Walters	Unlawful possession of Potatoes & Yams	6 weeks H. L. D. P.
Manchester	Charles Douglas	Abigail Jackson	" " " Bananas	Discharged
Clarendon	Harper Tulloch	William Heath	" " " do	Imprisoned until the rising of the Court
St. Catherine	Thomas G. M. Stewart	Arthur Masters	" " " Bananas, &c	1 month H. L. G. P.
do	do	Richard Butler	" " " do	do
do	do	Daniel Powell	" " " do	do
do	do	George Stewart	" " " Sugar canes	Sent to Industrial School
do	David Herah	Emanuel Prendist	" " " Cocoes and Cassavas	1 month H. L. D. P.

Inspector General's Office,
Kingston, August, 1915.

A. E. KERSHAW, Lt.-Col.

THE NEED OF CHEAPER LIME.

We quote the following from a pamphlet sent us from the United States, and as it contains good knowledge, we publish extracts from it. We have mentioned in previous JOURNALS about the machines that can be got for crushing limestone into fine white lime—a cheap and effective way of adding lime to the soil if several would co-operate to get a machine:—

“A limestone country will always be a rich country if the farmer can get the lime cheap and put it on his soil. With the lime he can grow legumes. The legumes enrich the land and feed his stock.” (In Jamaica limestone is plentiful, yet lime, an essential for the land, is very expensive.—ED.)

“While the science of making commercial fertilizers is comparatively new, the use of lime to increase yields is almost as old as civilization itself. The farmers of ancient China, Greece, Rome and Egypt found that it kept their soil sweet and productive.

In England, where the soil is much of limestone formation, and in the limestone States of America, constant applications of lime are needed to keep the soil from souring. Years ago the land in the United States (just as in Jamaica—ED.) was rich. There was virgin soil, rich in humus, fertile and productive. If one field was poor it was allowed to stand idle. Farmers went over to another field. The land was cropped year after year. The same plant foods were taken out. No one bothered to return them. (Just the same as here.—ED.) Then population increased: farm lands became scarcer; no longer was it possible for farmers to move to more fertile fields. (Just about the same as here. ED.) It became necessary to get yields from the lands and still keep the fertility up. Then the science of soil fertility was developed as it had been developed in Japan, China and the countries of Europe. Men learned the number of pounds of plant food that each crop demands. They found that there were *ten* elements that the crops take out of the soil. Four only, however, were subject to material loss. The rest are usually present in abundance. These four elements are: Nitrogen, phosphorus, potash and lime.

On some soils and for some crops, it became necessary to supply these plant foods, where exacting crops were grown year after year and the same set of plant foods extracted.

But on many soils, especially clays, there is enough phosphorus and potash to meet the crops' demands if the soil is well and deeply cultivated and drained. This leaves only lime and nitrogen that the cultivator must supply. Nitrogen is the most necessary, and yet the most expensive of all the plant foods. To get cheaper nitrogen was a problem at one time. Then a scientist noticed that little knots, or nodules, formed on the roots of certain plants, such as clover, alfalfa and all peas and beans—known as leguminous crops or legumes. Hitherto these lumps had been thought to be a fungus disease, but he found that they contained 8% nitrogen. Experiments showed that these legume crops had the power to draw nitrogen out of the air and store it in the soil; that these little nodules that develop on the roots are really little nitrogen factories. An acre of Cowpeas (Overlook Beans, Bengal Beans or Jerusalem Peas—ED.) or any other legume crop, meant millions of these little nitrogen factories at work enriching the soil without cost. So it was found that *legumes* bring *free nitrogen* to the soil—nitrogen, the most expensive and scarcest

of all the plant foods. But legumes do not like sour, acid land. The little nitrogen nodules that feed the plant and enrich the soil cannot grow unless the soil is made sweet and alkaline with lime. On lands where generous applications of lime are made, these crops grow and thrive.

Several reasons are known why an ample supply of carbonate of lime is of special value in cultivated soils: One is, that it is required for plant food. Another is, that it neutralizes soil acids, which would be injurious to plant growth. A third reason is, that it is essential to the activities of many kinds of useful bacteria, including those which gather nitrogen from the air independently of legumes. A fourth reason is, that carbonate of lime plays an important part in the mechanical condition of a soil. In particular, its effect is to granulate the soil so that if heavy, it becomes more open and porous, and loses much of its sticky nature. On the other hand, granulation may improve a too-open soil, which is made more retentive of both water and plant food by the addition of lime.

All cultivated land becomes acid in time and especially when much vegetation is returned to the soil (as in Banana cultivations, Ed.) Humus, organic matter decays; acids are produced; Carbonic acid is given off by the plant roots and washed into the soil. Organic nitrogen and ammonia are converted into acid forms. Few soils possess enough lime to keep the soil sweet. Even where lime rock is abundant we find the soil acid, because, before it can become available lime-rock must be burned in a kiln or be finely pulverized and mixed with the soil. The rain does wash the limestone and dissolve it, but to such a small extent that it is not appreciable to crops. (Our red soils though on white limestone are still poor in lime.—Ed.)

Big yields of crops cannot come from acid land. Drainage can do a lot, but lime (used with discretion—Ed.) will quickly restore it to its former productiveness. Lime enables you to grow Cowpeas, etc., better and so get free nitrogen. Lime is of itself a necessary plant food; lime makes sour land sweet and productive; lime improves the mechanical condition of clayey and sandy soils alike; lime does all of these things—no one of which any other element can do.

There are two distinctly different classes of lime. One is caustic lime, such as fresh-burned, or fresh-slacked lime; the other is the natural form, such as limestone and marl. But both quicklime and fresh-slacked lime are caustic lime, which tend to eat or burn all organic matter too quickly. If you ever let burnt lime or fresh-slacked lime get on your skin you know how it burns. Put burnt lime on your soil, and there is danger of its burning up quickly the valuable humus which is so necessary to make the land retain moisture and plant food. It is good when a quick and vigorous effect is wanted. Burnt lime, if not lightly applied, may burn up the valuable humus, and it also may liberate the nitrogen in the soil too quickly, more than the plants can utilise at once, causing a great waste of this most valuable plant food.

Ground limestone is a form of lime now much recommended by good authorities. Dr. Hopkins, in his Circular No. 110, from the Agricultural Experiment Station, Urbane, Illinois, states:—

“Fine ground limestone will be both the best and the most economical form of lime to use wherever it can be most easily obtained. If caustic lime is used we should make additional provision to main-

tain the humus in the soil. This means by heavy applications of manure or green dressings. The use of ground limestone to correct acidity and increase the fixation of atmospheric nitrogen is certainly altogether legitimate and commendable, but to use burnt lime to force the soil to give up more plant food than it would otherwise furnish, thus producing an increase in the first few crops, but ultimately leaving the soil more impoverished than before the lime was applied, is not thought to be advisable or profitable in the long run, unless the soil contains comparatively large stores of available plant food and abundant organic matter, or unless the burnt lime is required as a soil disinfectant as in diseases of roots.

Burnt lime is a most expensive article in Jamaica, yet lime rock is nearly everywhere in evidence; at any rate it is never far away from any estate. The idea of a lime crushing machine to be used by estates in cooperation is something to be thought over seriously. The application of lime dust to nearly all of our lands would be most beneficial, especially now that so many estates are growing Cowpeas, Overlook Beans, etc., for green dressings.

In support of the above, we quote the following from the *Rural New Yorker*, May 15th, 1915, (U.S.A.):—

THE LIMESTONE BUSINESS.—One of the most remarkable things connected with American farming is the wonderful increase in the use of lime during the past few years. The practice of liming has spread wherever it was tried with the result that it became a general proposition. Practically every piece of land that has been under cultivation for 50 years requires a dressing of lime. When people began to understand this fact, there was a rush to learn about its different forms and methods. We now have a dozen forms of lime, each one adapted to particular conditions, and probably the greatest development of all has been in the preparation and use of ground limestone. We do not take up here a discussion of these different forms of lime and their special needs. On a very sour soil or on the heavier clays we should prefer a quicker lime than ground limestone, but without question the use of the latter has spread very rapidly over the limestone sections, and in order to supply the material properly, mills or crushers have been devised for preparing the limestone. Some years ago this limestone crushing was largely confined to the localities where limestone was abundant. The lime was crushed and then hauled out to the farm. This was because it was thought that large and expensive machines were needed to do the crushing and these of course, centralized the industry. Smaller and still powerful machines are now made. They are portable and can be hauled about from place to place, so that in any locality where a ledge of limestone can be exposed, these smaller mills can be made useful. It is remarkable how this business of crushing limestone with the smaller mill has developed. Hundreds of plants are at work throughout the country. In some cases they are operated on much the same principles as thrashing machines or sawing outfits, as they travel from farm to farm crushing up a year's supply of Limestone, about as the sawyer would cut up the year's fuel.

RICE BRAN.

A considerable amount of rice bran is available in the parish of Westmoreland as a by-product when the rice grown there is milled. It is used in Westmoreland along with corn for feeding mules, and, it is stated, with good results. When corn was selling at 5/- per bushel—at which price it becomes a very expensive food—we got some of this rice bran from Mr. Walter Wolliscroft of Savanna-la-Mar, and had it experimented with in the feeding of ponies, milch cows, calves and fowls. The experiment has gone on for 3 months and after a slight falling away before the stock would eat all the proportion of rice bran given them, until they got accustomed to it, there has been no difference in results against wheat bran. We have no local chemical analysis of this rice bran, and it is possible our product may not be quite the same as rice bran elsewhere; but on reference to an analysis of this product made in Mauritius, we should not expect that it would vary very much in results.

In feeding horses with rice bran, substitute the same weight—not measure—as the corn superseded. A quart of corn weighs 1 lb. 14 ozs.; a quart of rice bran 1 lb., so it does not do to feed by measure, unless the weight is taken into account.

In feeding cows, give one-fifth more of rice bran in place of wheat bran, add salt in order to induce the beasts to take it. Some beasts accustomed to certain foods will not readily take to others.

It will be interesting to those who are interested in food for stock to peruse the following analyses of common foodstuffs for stock as made by the Director of Agriculture in Mauritius which we take from the West India Circular:—

	Digestible Fibre or Cellulose.	Digestible Fats or Oils	Digestible Proteins or Albuminoids	Digestible non-albu- minoids Carbohy- drates.	Albuminoid ratio.	Starch equivalent
Rice Bran ..	6.2	6.1	7.8	33.5	6.9	72
Wheat Bran ..	6.8	2.6	10.0	35.0	4.7	71
Maize Seeds (corn) ..	1.1	4.0	8.9	45.4	6.0	75
Oats, grains ..	7.2	4.3	9.3	40.7	6.2	79
Rice (paddy) ..	7.3	1.3	6.3	41.0	8.1	66
Gram (peas) ..	9.0	3.3	16.2	35.5	3.2	89
Poonac (coconut meal) ..	3.6	13.9	12.4	24.0	4.9	60
Cotton seed meal not decort. ..	16.7	4.0	17.1	17.6	2.5	83
Cotton seed meal decort. ..	4.5	8.2	43.2	15.1	.9	138
Molascuit ..	9.2	—	1.5	38.5	31.8	51
Molasses ..	—	—	1.4	50.2	35.9	53
Cane Tops (whole) ..	4.8	1.8	.8	7.8	20.9	19
Grasses-averages	6.0	1.2	1.3	8.5	13.3	20

Rice bran at the price it can be supplied can be fed *partly* in place of corn and perhaps also wholly in place of wheat bran, with decided economy. It is worth trying.

UTILIZATION OF WASTE.

The question of the utilization of waste animal matter, so extremely prodigal here, is one which merits the careful attention of all interested in the Island's agricultural development, and affords a wide field for the energies of the individual whose scientific training and mental equipment is such as to enable him to intelligently grasp and handle the problem presented.

As for example, bones: How very few people have ever considered the potential value, from the agricultural point of view, of the osseous rejections of our daily dietary. In northern urban or even remote country neighbourhoods the bone "merchant" is an established feature in the community, and the thrifty housewife recognises the price he pays for her weekly collection of bones as something not altogether negligible in her budget. Yet here they are allowed to decorate the landscape, or offend the eyesight, if not the olfactory nerve, in the too obtrusive "middin" heap. It is true that enterprising individuals from time to time have found an outlet for their business energies in buying and shipping bones to the United States where they are used up in the preparation of phosphate of lime or its compounds, eventually to find their way back to Jamaica worked into artificial fertilizers for which a fancy price is paid per ton. The question which naturally arises in the mind of any thinking individual is—Why are these bones (*inter alia*) not prepared on the spot and returned to the soil from which they were originally built up, to replenish in some measure the enormous depletion which is continuously going on in the raising of sugar cane, bananas, coffee, cocoa, as well as ground provisions. Providence it cannot be expected will always act as the fairy godmother to the improvident planter, and the time will inevitably come—if it has not already arrived—when overflowing rivers or inundations may be expected to do naturally what in other countries has to be done artificially. It therefore behoves us, if we are to be considered agriculturally as a progressive and enlightened community, to utilize to the fullest possible extent our disregarded soil regenerators.

To return to our bones, if not our 'mutton,' the questions arise, what supply is available and at what price can they be obtained? and further, what would be the cost of reducing them to a sufficient degree of mechanical fineness to enable them to be utilized for plant food?

From available statistics, it would appear that the dressed meat passing from the Kingston's Slaughter House is approximately 400,000 lbs. per month yielding at a rough guess, say 480 tons of bones per annum. Assuming that one half supplements the dietary scale of our canine pets, apart from what is consumed by these nocturnal pests which prowl around and apparently live on the *disjectæ membra* of the kitchen, we should have available, in Kingston alone, 240 tons of raw bone per annum for conversion into commercial fertilizers. Figures are lacking as to the quantity which might be obtained from the country, but solving the problem by the rule of three, it would work out as follows:—If Kingston and neighbourhood with a popula-

tion of 70,000 provides 240 tons, how much would be obtained from 700,000; the answer would be 2,400 tons. Adding this to the figures for Kingston, we have a total of 2,640 tons. In view, however, of the differences in the standard of living as between urban and rural districts it would be safer to halve the figures for the country. This being done we would have approximately 1,500 tons of available bone, a quantity which if collectable would provide quite a respectable volume for a small factory to handle.

In addition to this, there are other available sources of supply and material used in the production of fertilizers, such as ammonia in the bye-products of the manufacture of gas, and the blood and waste animal tissue from the Slaughter House convertible into dried blood and azotin. In the case of the first mentioned article the necessary plant would have to be installed for the recovery of the ammonia from the residual liquor, and its conversion into the sulphate form. But it is reasonable to suppose that the progressive body of gentlemen who manage the affairs of the Kingston General Commissioners, would not be averse to investing the necessary capital to recover these waste products provided it could be demonstrated to them that the venture would be a paying proposition.

According to the Annual Report of the Kingston General Commissioners, 26 $\frac{3}{4}$ million cubic feet of gas are produced each year for lighting and power purposes. The residual ammoniacal liquors obtained in the manufacture of this quantity of gas contain approximately 25 lbs. of coal carbonized yielding on a consumption of 2,000 tons of coal, 25 tons of brown sulphate of ammonia containing approximately 18 per cent. of nitrogen. Next to nitrate of soda, sulphate of ammonia is one of the best forms of nitrogen for fertilizing purposes, and is particularly valuable on clay or clay loam soils.

At the present price in the United States of sulphate of ammonia, the revenue the Kingston General Commissioners would obtain from this source would be 25 tons at £12 per ton of 2,000 lbs. yielding £300. Labour costs, it should be noted, are not taken into consideration here, as the writer has no information on the matter.

With regard to the quantity of blood collectable from the Slaughter House, this may be conservatively estimated at 2,240 gallons per month, or say 36 tons of dried blood per annum.

Waste animal tissue available for conversion into azotin about 100 tons per annum, leaving out of the reckoning any carcasses which might be condemned as unfit for human consumption. There are also other wastes from the abattoir which if dried could be used for filler, if not for other purposes. The point which need scarcely be emphasized is that nothing in the Slaughter House need be wasted if means are provided for its utilization.

Striking a balance of our waste products, as roughly sketched out in the foregoing, we are losing materials of agricultural value to the following extent in Kingston alone:—

Bones	240 tons
Ammonia	25 "
Dried blood and Azotin	130 "
	—
	395 tons.

Say 400 tons at an average value of £5 per ton, the actual loss in round figures is in the neighbourhood of £2,000 per annum.

Bones within the writer's recollection have been purchased here for shipment at 25/- per ton. The expense of grinding may be estimated at from 10/- to 18/- per ton producing an article which has a commercial value of about £5 10/- per 2,000 lbs. The agricultural value may be gathered from the fact that good raw bone free from meat and excess of fat, contains on the average 22% phosphoric acid and 4% of nitrogen. "The nature and composition of animal bone is such as to make it a valuable source of phosphoric acid, and while it is used largely with nitrogenous and potassic material in the manufacture of artificial manures, its best use is perhaps in fine ground form, particularly for soil improvement and for slow growing crops." (Voorhees).

There are other sources of waste which will be obvious to anyone who has given a moment of thought to the matter, e.g., hair and other wastes from tanneries, leather cuttings and parings from shoe and harness makers, fish bones, offal and household waste generally, which at present finds its way to the city dumping ground.

W. KIRKPATRICK.

Kingston.

—:O:—

NAPHTHALENE AND WEEVILS.

How is it a correspondent asks that there is so much talk now of Naphthalene being used to keep weevils from attacking corn? It is nothing new. I read pretty much what you are stating now in the JOURNAL, away back in your early JOURNALS.

That is so. But the bulk of the readers of the JOURNAL are new since then, and there is far more interest now being taken in trying to do things. People have awakened to the fact that agriculture is a business and that they have to know as much as they possibly can about their business. If it has taken years to awaken them to this, no matter; it is actually happening.

We find in the JOURNAL for *January, 1899*, the following:—

DEATH TO WEEVILS.—For the destruction of weevils among corn and peas bi-sulphide of carbon has been found most effectual but on account of its highly inflammable and poisonous nature many who have not large quantities of corn and peas to store would rather risk the loss by weevils than use it. A simpler and very satisfactory method is the use of ordinary naphthalene powder, which can be used both to drive out the insects already present and to prevent others coming in. It is cheap, and there is no danger in its use. It may even be swallowed in quantity without injurious effects. The powder is best placed at the bottom of the grain for unlike bi-sulphide of carbon which is heavier than air and sinks, the fumes of naphthalene ascend. This is how to apply it. Take a bamboo about 1½ in. in diameter and long enough to reach from the top to the bottom of the bulk of grain. Punch the joints out of the bamboo, so as to be able to pass a stick through the bamboo, from one end to the other. Have the stick made to fit the cavity in the bamboo. Pass the bamboo, with the stick in it, down through the bulk of grain from the top to the bottom. Withdraw the stick and drop into the top of the bamboo about half a teaspoon of naphthalene powder. The bamboo can then be drawn out as the naphthalene is safe at the bottom of the bulk of grain. If the bulks are

large this should be done once to every 10ft. square of the bulk. Repeat the application every fifteen or twenty days as the powder evaporates. The weevils that can leave the grain will do so, and those that cannot leave are killed by the odour of the naphthalene. We do not believe that naphthalene thus used can cause any injury whatever to grain. For seed purposes the germinating powers appear not to be affected in the least. For marketable grain the color is not affected, and the odour will leave in a short time if fresh naphthalene is not applied to it. The quantity of powder used is infinitely small in proportion to the quantity of grain, and the powder is entirely destroyed by evaporation, so that for food purposes the effect is nil.

We were actually using this method then, having picked up the idea from somewhere else no doubt, and so we wrote about it.

"I am pleased to inform you that corn stored up by me on the 25th of March, 1915 (with Naphthalene as directed by you) was still good and free of weevils on the 25th of June, 1915."

W. A. S.

Mile Gully,
27/9/15.

—————:O:—————

MAKE THE ACRES WORK.

Agriculture is not a matter of how many acres a man has, or even of the quality of the land. Some of the very best holdings in our Small Holdings Competition, for prizes, were in the driest parts and contained poor and rocky soil. There was one holding consisting of steep rocky and gritty hillsides, and the owner had patiently terraced these, so that each hillside was a series of long platforms or steps and stairs about 3ft. broad. The plants were all therefore growing on a flat, and the owner could walk along these terraces without always the effort of hanging on to a hillside.

One man too with 5 acres gets two and three times more out of his acres than his immediate neighbour with 10 acres of the same land. At least two things are required to get the most out of land, these are, for the owner to make himself an efficient farmer and make his land also efficient to bear heavy crops. He can make himself efficient by minding his business, putting in at least 5 days steady work a week, never putting off necessary work to another day and never trusting to luck; by finding out why certain parts of the land do not bear well, why certain cocoa or coffee trees do not bear well, and if they were found incurably lazy, get them superseded by better plants; by discussing different ways of working with his neighbours, by attending Agricultural Meetings, determined to learn all that is possible there, by reading about his business and trying to learn all that he can from books; by using good seed, by keeping stock and caring the animals well and saving the manure from them. Then he can make his land efficient by cultivating it thoroughly, by trenching it where the soil needs it (especially on hillsides), by digging in manure from rabbits, pigs, goats, donkeys, mules, horses, cows, any or all, and from the house and field (wood-ashes especially should not be wasted) by mulching the driest land with grass and bush, by weeding the crops before they get a set-back through the growth of weeds.. Make the acres do their duty.

SOME HINTS ON CURING COCOA.

The following suggestions for curing cacao and obtaining nice round beans with fine aroma and good break are given as an appendix to the Report of the Trinidad Cacao Commission.

When the pods are broken in the fields the entire contents, including the placenta or guts, must be taken to the curing house and put to sweat along with the cacao, and only removed when the cacao is put into the drying houses. The sweating ought to be from 3 to 4 days in the box, then turned over into another for two days before being turned out into the drying houses. Of course, when drying space is required, sweating for shorter periods may become necessary.

When the cacao is in the sweating boxes it ought to be well covered up with banana leaves at each sweating, and these leaves ought not to be thrown away, but used over and over again along with fresh leaves as the curing of the crop progresses and only be turned into manure when the crop is finished. Removable covers to the sweating boxes causes quicker fermentation. The placenta or guts make a splendid manure, and ought to be put in the manure heap and used when planting out supplies of cacao, cedar or any other trees, as it makes them grow rapidly. Placenta when thoroughly dried is saleable and would pay to export could it be pressed into bales so as to economise in freight and cost of bagging. The foregoing suggestions will undoubtedly assist in improving the quality of the cacao cured, but of course in rainy weather discretion must be used as to the period of sweating as on no account must black cacao be turned out. Clay-ing of cacao ought to be avoided as much as possible and when necessary only sufficient to give a uniform colour ought to be used.

From "The West India Committee Circular," May 4th, 1916.

—:O:—

SAVE YOUR LAND.

Soil Washing.—The greatest waste in Jamaica—among many forms—is what few think of, and we do not suppose people in towns ever give it a thought. It is the washing of soil, of good land, into the rivers and gullies and then into the sea.

People will quarrel and go to court over an inch of land *along* their lines or boundaries, and yet view with equanimity the heavy rains washing away inches deep of soil from the *surface* of their land, wherever it is bare and not drained.

After the recent heavy rainss we noticed on some hillside cultivations, not trenched, little gullies all over, some plants washed bare or washed out, and at the foot of the hill large banks of soft soil which had been washed down; tons of good earth had probably already been washed into the stream; then the rains stopped and left the big bank of good earth on the bank of the stream; an hour or two more of heavy rains and this would have gone, to be replaced by another bank of soil washed down.

Land costs money; at this particular place the land cost small settlers £5 per acre. There were acres of it, and that the best of it being washed away during the heavy rains.

We saw another piece of land, very steep, but thoroughly trenched; every chain had a 2ft. deep trench across the hillside; every trench was nearly up to the top with soft soil washed into it, but there was

no more in the bottom trenches than in the top ones; there was no bank of earth heaped up at the foot of the hill, practically none had been washed away.

When the rain was over the trenches would be cleaned out and the nice earth flung—not on the edges of the trenches—but all over the land.

The owner of this particular land had unfortunately just cleaned out his bananas in order to give them a last forking for the season, and he had failed to leave the weedings in a long line between the rows which also would have helped to prevent wash; the weeds were in scattered heaps.

Such rains (of August and September) were of course unexpected. It is good to have the land covered when the heavy seasons rains ought to come. Green cover crops are a help in this way. In heavily shaded places bananas, with cocoa or coffee on, however, cowpeas and other crops for green dressings will not grow in heavy shade; we have not yet found one legume that will *start* in the shade, although some will grow in the shade of bananas if started when these are young and open. In such cases (hillsides) the weedings should rather be kept in long lines, rather than as is commonly done, in heaps.

Trenches or drains should be put in *across* every cultivated hillside, no matter the kind of cultivation.

Terracing.—On steep hillsides, the terrace or platform system of working can be adopted with very great advantage. Thus the cultivator can work his field with greater facility and less exertion, as the outside of every platform or terrace is a footpath so that he does not need to hang on to the hillside in going up and down, but walk easily along; the plants instead of having their roots exposed on the lower side when they are only growing with half a root system—as is usually the case with bananas, and partially the case with cocoa, less so with coffee but still to some extent—are growing on a flat; no trenches are required, the terrace does the drainage and catches all the wash; the terrace should always be tilted towards the hill not sloped with the hill; the washings can easily be cleared off and spread on the land.

The beginning of this system is sometimes noticed in the cultivation of yams on hillsides. Each yam is on a square platform or terrace; this platform should, however, be carried right along the hill, the yam hills being placed close in the line and wider between the rows. For bananas this is, we feel, *the* system for steep hillsides; the cocoa or coffee can then be planted very easily towards the inside of the platform against the hill. It is easy clearing off the earth after heavy rains from around the cocoa and widening the terrace if required.

This is not in any way a “discovery.” It is not our idea. We read years ago of the wonderful terracing system on the mountainsides in lands peopled by what we call “ancients”; that is people who cultivated (a great deal better than we do now), thousands of years ago. Not only that but these “ancients” had the most wonderful irrigation systems and irrigated the driest and most arid hillsides.

In Italy at the present day the lime and orange trees are grown on terraces along rocky hillsides.

In the Canary Islands the “Dwarf” bananas that are so much exported to the United Kingdom are grown on terraced hillsides which are irrigated.

We have had this idea in mind for Jamaica for years and have spoken about it for years but have not had it thoroughly tested; indeed only have seen the plan carried out in a "sort of way."

It is a plan, however, that is now written about for the purpose of criticism before anyone adopts it.

:O:
CORN.

Mr. Ross, of the Seafield Branch in St. Catherine, has not been in the past a corn grower; and after a lecture on the subject by the Instructor for St. Catherine in the early part of the year, felt rather sceptical when the Instructor said he did not see why 50 to 60 bushels of corn per acre could not be produced in these parts with good cultivation. Mr. Ross determined to try his hand at growing corn from selected seed. He planted 6 square chains experimenting by planting 1, 2 and 3 seeds to the hole about 4ft. apart. The returns actually obtained were $15\frac{1}{2}$ bushels of grain, but the grower estimates that between himself, his family, and his friends, there was consumed about 5 bushels in the year. In several parts the young corn was eaten by worms and was not replanted. This grower says the ears were large and in some instances had 4 to the stalk. The sample of grain sent us was certainly very fine. Therefore from 6-10ths of an acre, 1-10th more than half an acre, there was a yield of 20 bushels equal to 36 bushels to the acre. This is getting near to what the average yield should be.

:O:
YIELD OF CORN.

The average yield of corn in Jamaica is an unknown quantity. It has not been possible to get figures from small settlers in past years, because the family begin to live on the corn from its milk stage on, so that what is finally shelled out as grain does not represent the total yield at all.

Although there have always been a few, especially in St. Elizabeth, who grow corn on a fairly large scale (for Jamaica) it is only very recently that the larger estate owners have begun to grow corn on a field scale more generally, in different parishes. We have heard of a crop of 2,000 bushels. One planter grew corn one year at 10d. a bushel, another at 1/-. Between patchy soil, damage by a severe wind in June, and finally the later planting laid low by the storm of August, our corn this year cost 2/-, with a large quantity of small nubbins from stalks damaged by rain and wind, which are not shelled out and will be fed as they are to pigs and fowls. Figures that may be depended upon as showing what may be done by ordinary good cultivation are from small areas.

There have been local Corn Growing Competitions held where yields have been obtained at the rate of $33\frac{1}{4}$ to 102 bushels per acre. One of these Competitions was in Westmoreland, the 1st. prize plot giving at the rate of 102 bushels 26 quarts, and in the other Competition in Clarendon the 1st. prize yield was at the rate of $99\frac{1}{2}$ bushels per acre.

Yet some people think that 25 bushels per acre would be a large yield. On the contrary it is a very small yield even on ordinary land and by ordinary cultivation. By ordinary, we mean not land carefully selected as good corn land, as we would choose good banana land, and the soil prepared only by forking holes—not ploughing or

forking the whole land through, and refining, and cross ploughing and harrowing, and so so, which methods are not often done in Jamaica although they should be.

If very ordinary cultivation can give 25 bushels per acre, what would intensive cultivation give? As a matter of fact, the average yield of corn here on fair land with ordinary cultivation should be not less than 50 bushels per acre.

It is usual to plant corn at a distance apart from 3ft. square up to 5 x 3, and to allow 3 stalks to grow in each hole; 4 good and 6 ordinary cobs give a quart.

Then 3 x 3 gives 4,840 holes equal 14,520 cobs, equal 2,420 quarts, equal 75 bushels; $3\frac{1}{2} \times 3\frac{1}{2}$ gives 3,556 holes, equal 10,668 cobs, equal 1,778 quarts, equal 55 bushels; 5 x 3 gives 2,904 holes, equal 8,712 cobs, equal 1,452 quarts, equal 45 bushels; 4 x 4 gives 2,722 holes, equal 8,166 cobs, equal 1,361 quarts, equal 42 bushels.

It is not to be inferred from these figures that the closer planting results in the larger yield. A planter has to find the best distance for his particular soil and climate himself. Then our seed in Jamaica is so mixed with different varieties that some grow very tall by nature, others shorter, and there are varieties that grow short and stocky with the cob borne low down, and a little of this "breed" shows occasionally in some corn we see. As a general rule, however, our corn now is a tall-growing leafy corn, and if the soil is fertile 3 x 3 is too close and would result in spindly stalks and poor cobs, 4 x 3 or 4 x 4 are good distances in general.

In the United States which is the premier corn growing country, $3\frac{1}{2} \times 3\frac{1}{2}$ each way is a usual distance, so that ploughs and cultivators can be run both ways.

In the Clarendon Competition the best yield ($99\frac{1}{4}$ bushels per acre) resulted from planting 5 x 4, 4 to 6 grains in the holes.

Taking corn planted at $3\frac{1}{2} \times 3\frac{1}{2}$ as an average, 3 stalks to a hole, 1 cob to a stalk, there should be a yield of 55 bushels to the acre.

—————:O:—————

PLANTING CORN.

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I am afraid our friend (the planter mentioned in the June JOURNAL page 239) made a mistake some where. In April of this year I wanted to plant some corn and I wondered how I would manage with pests till I remembered something about woodashes mentioned in a JOURNAL of some time past. Finding this, I steeped 7 quarts and pint of corn in the woodashes mixture for 12 hours and planted after. My great pleasure is that nearly every grain grew well and has borne lovely. A neighbour of mine, not 10 chains apart planted without steeping his corn, and his experiences was that mostly every grain was pulled.

SMALL SETTLER.

Mount Charles,
St. Andrew.

HOW I GROW YAMS.

(By Walter Greville Taylor, Kempshot, Lucea P.O.)

I have been asked to give an account of how I plant yams and make such a success of it, and I do so not because I have superior knowledge to the hundreds of other growers in Hanover, but because I know that there are many who would do better if they had the experience of others like myself who have, through failure and losses and successes arrived at methods that stand us in good stead.

To begin with I own the lands I cultivate and it might interest your readers to know that I did not inherit them but bought them out of the proceeds of cultivation, chiefly yam growing.

My lands are old cow pastures in which I run a few head of cattle and mules which I find very useful helps to my field, by way of supplying manure and firming the land and also making use of the weeds and grasses that grow up. By their use an old thrown up yam field converted into a pasture is ready to be re-planted in from two to three years.

In taking up a piece of pasture for planting Lucea yams, I have the grass weeded and the hills dug in November and December. Forking is a new operation here and I have just begun with it, and I suppose from what the Instructor tells me I will get better results; that is left to be seen.

I do not dig two thousand hills to the acre as is done on rent lands, I consider that a "greedy choke puppy" policy to pursue. I find that 1,500 and even 1,200 hills quite sufficient for an acre.

I make sure that my hills are well dug, deep and large, and that the place is well drained to prevent my yam hills being washed by heavy rains. The preparing of heads for planting is a very important part of the business. A head should be 4lbs. at least in weight, and in any case not much smaller, so that it may grow a vigorous and healthy sprout. One in each hill is sufficient. When on account of scarcity of heads smaller ones have to be planted, two can be put to the hill.

Some yam growers believe in planting deep, but I find I get better results by shallow planting, so that a portion of the head is exposed. The reason I think is, that when weeders are put to work they mould up the hills and cover the heads entirely, if they were planted deep, they will then become too deep and the result would be a poor crop.

A yam field should be weeded often enough to keep the ground free of weeds while the yam is growing and this might mean one, two or three weedings, according to soil and weather.

Now quite a good many planters cut their yams before they are ripe so that they may take advantage of a temporary good market or so that they may get large heads. By doing this a head may be got large enough to plant 4 hills. This is quite good enough for a man who is trying to increase his stock of heads, or for a beginner. But I plant yams that I may get food for myself and plenty to sell, and I want as good a yam as I can get. I allow the yams to ripen and then "slip" or "back" them, that is, I cut the yams and turn them in the hills without taking them out. They will keep thus for a long time if they are ripe and will be very good for eating. They will not make large heads, but they will make heads large enough

to plant one or two hills each. In all kinds of yams I plant about 10,000 hills each year, which is not very large for a Hanover yam grower.

Good yams, that are well matured will always be preferred in any market and I find no difficulty in selling mine to the exclusion of loads of unripe yams.

In conclusion I will tell your readers that I have always tried to follow the hints I get from the JOURNAL and have found many of them very useful.

(The contributor of the above article is a very intelligent small settler who has adopted some modern methods in yam growing, which is his chief business. He knows what he talks about, as he grows yams to supply to the Public Institutions and gets a steady good price each year irrespective of the fluctuations in local prices. His son was sent to the Farm School at Hope, and has returned home and taken up yam growing for a living also.—Ed.)

—:O:—

RUBBER.

We have been seeking for the latest information as regards the tapping of Hevea or Para Rubber trees, and we have received the following among other letters which appears to give useful information:
Dear Sir,

Messrs. Henry K. Davson & Co., of London, have asked me to write to you concerning the best method and implement for tapping Hevea and Caera Rubber trees for the information of their friend Mr. E. A. dePass of London and Jamaica.

2. Mr. C. K. Bancroft, M.A., the Assistant Director of Science and Agriculture in this Colony, spent several years in the Malay States as Assistant Director, and he may be taken as an authority on this subject. Recent tappings in this Colony have certainly confirmed his opinions. In an article published in the Journal of the Local Board of Agriculture for July 1913, he reviews the various tapping methods—the herring-bone, the half herring-bone, and the obsolete full and half-spiral systems. He recommends strongly, and I entirely agree with him, the latest method now adopted in the Malay States. Any tree 18 inches in circumference, 18 inches from the ground or base may be tapped, the highest yield of rubber being at the bottom of the tree. Any tree, therefore, 18 inches or more in circumference, is measured at 18 inches from the ground, the girth is taken and is divided by $\frac{1}{4}$ or $\frac{1}{2}$, depending on the length of the cut. The slope of the V cut must be at an angle of about 5 degrees, if care is not taken in this respect when the bottom of the tapped surface is being reached, i.e., the bottom of the tree, there will be an area of bark left. For example, a tree say is 28 inches in girth, 18 inches from the base; the length of the side of the V will be 7 inches. A small straight wooden lath is used to run down a vertical line on each side of the tree to keep the length of the cuts uniform. This vertical channel must not be so deep as to allow of latex escaping and will have to be renewed from time to time. *One quarter of the tree will last one year, which will allow of renewal of bark in 4 years.* During tapping the bark must be removed in shavings about 1-20th of an inch thick.

The early morning hours are the most suitable for tapping.

TAPPING IMPLEMENTS.—I find that the best is a simple Gouge knife, in spite of the numerous patents. "A bent gouge, 5-16ths

of an inch wide at the cutting end," Mr. Bancroft states, "is coming into favour in Selangor."

The Farrier knife is also useful; Mr. Bancroft states that "it is significant that on the immense area of rubber in the Malay States a patent knife is hardly ever seen."

Spouts to lead the latex to the cup are two and a half inches long and can easily be made from thin galvanized iron sheeting. The above remarks refer entirely to Hevea.

With regard to Ceara, I have had no experience of tapping these, probably a pricker would be useful, though a very dangerous implement to use in Hevea, as it means a rough, "burred," surface incapable of being again tapped.

Possibly Ceara might be tapped after the rough scales have been removed somewhat in the same way as Hevea. If I obtain any information in this respect I shall let you know.

I shall be very pleased to give you any further information if this is not sufficient. It all sounds elaborate but is simplicity itself actually. A man should make about 1000 cuts a day.

Yours faithfully,

(Sgd.) EDGAR BECKETT,

Agricultural Adviser,

S. DAVSON & Co., LTD.

The Creeklands Rubber & Produce

Company, Limited,

Berbice, British Guiana,

14th July, 1915.

(Incorporated in England.)

—:O:—

THE HANDLING OF COCOA.

We should keep our cocoa plantation free from weeds. We should give the cocoa trees shade. The best shade tree is the banana tree.

We should not allow any parasites to trouble the trees. If the tree have plenty limbs, we should cut off about three of the small ones that hang to the ground. We should cut it with a sharp cutlass. The cuts must be very smooth. We should use a gouge to dig out the socket that will decay in the plant. We should tar it to prevent water to soak into the tree and to prevent the tissues from drying. We should cut off the gormandizer because it suck the mother plant. We should not ring the pods off the tree else we would soon see it begin to decay. It will not die but will look droopy and will not give a crop. If earth is around a part of the stem of the tree we should take a fork and clear it away from the base."

Mr. Cradwick, Senior Agricultural Instructor wrote:—"Above is an "impression of an elementary school boy of a demonstration of mine at Marlboro."

—:O:—

SEASONABLE HINTS.

POTATOES.—The best time to plant "Irish" potatoes in the lowlands, is between November and January. Those who wish seed potatoes must advise us at once as our first lot will arrive at the end of October.

VEGETABLE SEEDS.—Our fresh supplies of vegetable seeds have arrived, and we are sending out at 3d. per packet, as usual, to members of the Society. Branch Societies requiring a quantity of such as Cabbage, and Turnips, should advise us ahead.

VEGETABLES.—Now is the time for vegetable seeds to be planted. In case of heavy rains at the end of October or early in November, we prefer to plant seed for the early vegetables in boxes, which can be put under shelter, if required. Otherwise it sometimes happens that we get a wash-out and tender vegetables, just starting growth cannot stand our torrential rains.

We like to have some young plants (cabbage and tomatoes particularly) ready to transplant the second week of November—after that, we sow all seeds out in beds right away.

Remember the oft repeated hints on how to make beds for fine garden seeds. Turn up the soil roughly, where it is cloddy and clayey, and let it weather; the fine red dirt does not require this. Then refine the soil, making your beds as soft as possible, then firm down; we do this with a board, placing it on the bed and walking along it, sometimes jumping, to make sure of a firm bed below. Then line your rows; take the back of the rake and make shallow drills; again firm these drills with the back of the rake or the edge of the board. Plant all the seeds thinly; the usual fault is to plant thick and get spindly little plants crowding each other, necessitating thinning at once, and waste of plants. Cabbage, Turnip, Beet, and Tomatoes should be planted thinly; Carrots and Parsley thicker. Cover over with a quarter of an inch of dirt leaving still a shallow drill, so that a little soil can be drawn into the young plants, when they start, which is especially necessary with Cabbage and Tomatoes—not so much with Turnips, except in the very early stage. It is all right for Turnips to have the tops of the bulbs, or tubes, showing out of the soil, and these should not be covered. When the Cabbage and Tomato plants are 6 inches high and thick and sturdy, they can be transplanted. Turnips, Carrots and Beet it is better not to transplant but some as they thin out, plant the thinnings and if these get rain or are watered, they catch and make good plants. Leave the Turnips and Carrots rather close at first as they grow, and as they form little roots, these can be thinned out and used for soup. The young Carrot and Turnip tops also make good vegetables for soup.

All vegetables want rich soil, so that plenty of manure is required for vegetable gardens. It is hard to get a better soil dressing than rabbit manure, but it should be dug in a month or so before planting.

A good way is to turn over the soil meant for a garden 8 or 10 weeks before the vegetables are planted, manure it, plant Red Kidney Beans wide between the rows and close in the row, and use these green as French Beans. If they are not all finished when it is wanted to plant a nursery of Tomato or Cabbage seed, then sow the seed between the rows of Beans, before the latter are taken out. The soil is then ready for the garden, with the rabbit manure well incorporated. For Cabbages and Tomatoes we also use fowl manure well mixed with dirt.

All vegetables—but more especially lettuce—must be pushed along from the start; if dry weather happens, watering is necessary. Vegetables which get a setback are never as succulent as those which are kept growing apace.

* * * * *

COFFEE.—Now is the time for those interested in extending their coffee, or for those in the mountains who have bananas but no coffee yet, to plant out a bed with the best coffee berries obtainable, as a nursery. Meantime, to save time, the very sturdiest looking plants (or suckers) that have grown up beneath the coffee trees can be selected to plant out this season. The seeds planted in the nursery will not give plants ready for transplanting until this time next year. The cool months make the best time to transplant.

We have tested and seen tested over and over again what are called “flying suckers,” that is, long whippy plants 18 inches to 2 feet high, planted as they are, against the same plants cut back to a 4 or 6 inches long stump, and the latter have made quicker and surer growth (especially when a dry spell followed on the planting and made better shaped trees with regular primary branches from low down; the whippy plants never make regular shaped trees. So if planting out growing suckers, cut back and tilt a little to the side to favour one strong new growth starting. If planted straight, new growths will start too near the cut edge and there will be too many shoots.

If planting out a nursery bed, be sure to take the best seed from a strong growing tree, and it is best to get seed from as high up as possible—not on the tree, were fer to elevation of the land. Do not plant seed grown under 2,500 feet above sea level.

We shall get seed for any body who applies, and guarantee it to be high grown seed from foodlife trees.

* * * * *

DEPTH OF PLANTING CORN.—We have experimented, though perhaps roughly, in planting corn at different depths. Most corn we think is covered over too deeply and too roughly. We find as a general rule if the corn grains are covered with one inch depth of soil, they come up quicker and stronger than if covered deeper. If the soil is moist that is the best depth; if planted however in dry weather it is best to plant deeper but even then not over 2 inches. Guinea corn should merely be covered, not more than a half-inch.

In last JOURNAL we wrote that there were usually some compensating circumstances even in a calamity like a hurricane, because a storm usually brought rain and plenty of it for months after. Then we began to think about what possible good the long droughts had done. They of course rested the land to some extent so that when rains came the response in growth was instant and at high pressure as it were: they made cultivators think more and plan more to circumvent dry weather in future: ponds were cleaned and deepened, tanks cleaned out and repaired, new tanks made, public tanks and reservoirs erected as reserves, irrigation schemes planned and one started.

There is one way, however, that droughts certainly have conferred a benefit that we did not think over at first until someone referring to the good seasons and the expectation of years of good seasons to follow, said:—"Well, I hope we shall not require to bother with all this mulch mulch business again." At the same time, we saw places where the heavy rains had "melted" or dissolved heavy mulching that had been applied until with the soil being forked, there was turned under a heavy coating of rich looking manure.

The point is, that lands that would never have received any manure at all, have been mulched heavily over some years with grass and trash which have formed manure, and the soil is now richer than it would have been had there been no droughts.

It would be a mistake, however, to trust to a belief that we are going to have regular showers all through this and next year. It will be a wise policy to prepare for the usual dry weather from January to March and from the middle of June to the middle of August next.

Green dressings can be planted still: it is better to cover the land with something of use like Cowpeas than leave it bare to be overed with weeds which will rob the soil if left until they are rank, and cause constant expense to keep down. One year's seeding (of weeds) means seven years weeding.

Have a mulch of green crops or dry material (grass, trash, etc.) according to circumstances, ready for January at any rate.

* * * * *

DRAINAGE.—It is good to see fields laid off with a good system of drainage. Practically all lands need drains, would be the better for them, although such soils as are in parts of Southern St. Elizabeth and the red dirt soils of Manchester, do not require much in this way: no drains are put in these lands at present, but they would benefit by trenches of course at wider intervals than are necessary on heavy loams or clays as catchpits if for nothing else.

While banana and cocoa cultivations are usually well drained, other cultivations are not. Cane fields are not drained enough: coffee cultivations are not usually drained at all: provision fields need drainage for two purposes—(1) to prevent severe wash; (2) to save washed soil; (3) to aerate the soil which last means better growth of the plants.

* * * * *

TOBACCO.—It is still time to plant out nursery beds of tobacco. We have seed of selected natives (for rope tobacco), Havana (for cigar tobacco) and a little Sumatra (for wrapper tobacco.) A threepenny packet of Havana and Sumatra should give enough plants to plant an acre; a 3d. packet of selected native gives enough plants to plant 2 acres.

———:O:———

STOCK NOTES.

PIGS.—While we have local epidemics of "Hog Sickness" here—this is a term used locally for every kind of serious sickness among pigs which causes a series of deaths in a locality—but we have observed that the symptoms have not always been the same—it has never been established that we have the real "Hog Cholera" here.

We have over and over called the attention of all those who keep pigs, to this: that most cases of so-called "Hog Sick" are really indigestion, and the moment pigs refuse food, and look huddled up, medicine should be given.

We have also impressed on everyone the necessity of having shelter for small stock; in heavy, continued rains, pigs (which do not mind ordinary rains) are often tied in exposed places, or are penned up in pools of water; their feeding is neglected, because of the rain, or only one big pile of stuff is put down to them in 24 hours, when they over-eat, and then later, forced by hunger, eat up the sour scraps. The result is indigestion, which lessens and lowers their condition, and lays them open to pneumonia, from the continued beating and chills following on the heavy rains. The symptoms these pigs suffer from closely resemble Swine Plague, which is different from Hog Cholera. The latter is a disease of the digestive tract; Swine Plague is a disease of the respiratory organs.

The whole matter is to form the subject of investigation by the Government Veterinary Surgeon, and whenever a lot of deaths occur in a district the local Instructor or this Office should be notified at once.

ADVICE.—A good many questions on troubles among stock are sent us, some of which we can deal with promptly by letter; others however require the advice of a Veterinary Surgeon. This Society has not the direct services of a Veterinary Surgeon at its disposal, but technical questions can be referred to the Government Veterinary Surgeon through the Director of Agriculture.

We give some specimens of the questions sent us:—

"I have just come across a severe case of parasitic disease in the cow, and for the benefit of the members of our Branch here, many of whom own cows, I send herewith samples of the parasites and beg of you to advise me as to the precise nature of the disease, and the treatment.

This parasitic scab entirely covers the scrotum and sheath of cod (its a bull) and appears also on various other parts of the skin. It has also attacked the mouth, gums and insides of nostrils. The growth, where thickest on the sheath attains the length of an inch in some places and the extremities are horny.

The cow does not feed as usual, though whether this is due to lack of appetite owing to the progress of the disease (it first appeared sometime in December last) or to the growths in the mouth hindering feeding, I am unable to determine."

Ginger Ridge,
Old Harbour.

The following reply is from the Government Veterinary Surgeon to whom this was referred:—

"This affection of the bull mentioned appears in the absence of a microscopical examination, to be papillomatous in which numerous papillomata or warts occurs in various parts or over the whole body. The chief parts usually affected are the thinner portions of the skin, e.g., sheath, scrotum, nostril, lips, etc.

I have only met with the disease in bulls, it is rather rare and not contagious, that is, there is no tendency of the affection to spread to other members of a herd.

The loss of appetite is due to the affection of the mouth.

Except for the temporary loss of appetite and condition and unless the wart should appear in the internal organs, the disease is not serious and the animal may even recover spontaneously.

For treatment mild caustic dressings may be used, on the skin an ointment of—

Zinc Sulphate.....	1½oz.
Copper Sulphate.....	¼oz.
Lard.....	4ozs.

Apply to the warts once daily.

The affection of the mouth may be treated with a mouth wash of—

Alum.....	½oz.
Water.....	1pint.

A little to be used in sponging the mouth twice a day. It would be interesting if Mr. Gregory would give more details as to the onset of the disease and whether other animals of his herd are affected."

G. O. RUSHIE-GREY, V.S.

"Will you be so kind as to tell me what is to give a cow passing blood; beg for a reply by return post."

Crooked River.

First, it is not said where the blood is passing from, nose, mouth, vagina, or arms, but probably the last.

Second, it is not stated under what conditions the cow is kept nor third whether it has received any injury or is in calf.

The passing of blood is one of the symptoms of Anthrax, a most fatal disease and dangerous because of its extreme contagious and infectious character.—ED.

* * * * *

We wish to point out that in sending for advice, correspondent must give full and clear descriptions and that is not often done. How could a human doctor give advice by letter if only the most meagre description of a trouble was given?

—————:O:—————

MILKING A COW.—The proper milking of cows is an art that means a lot in a milk business. The good milker, who sits close to the cow's side, milks with both hands, milks lightly and easily yet makes the milk flow in a long unbroken stream into the pail, saves time and gets more milk over the one who sits a yard away, pulls at the teats as if they were india rubber, using only one hand, takes three or four times as much time to get milking finished; and a cow so treated never does feel any pleasure in giving her milk and so does not give as much. Most cows taken young can be taught to stand for milking without any rope, and if properly handled not only stand but stand anywhere without being taken to the same place in a yard every time.

Plenty of cows too that have had calves can be so trained, to milk without their calves; but that is not so easy as with heifers.

If the milking is properly done, the cow enjoys the operation, chewing the cud the while with eyes half closed, and one could almost say—a smile on her face.

Every cow before milking should have her udder washed with a disinfectant, and there is no better for this particular purpose than Permanganate of Potash—a pinch of the crystals in water. Then the first two "draws" of the teats, which contain dirty milk, should be drawn on the ground. The milk following is good.

—————:O:—————

MULES.—Some months after the War broke out, at the instance of Brigadier-General Blackden, we made enquiry all over the island as to the number of mules, and the number of horses suitable for transport purposes, which would be available in Jamaica, and the prices of these. We do not appear to have a large number of beasts big enough and stout enough, and the reply from the War Office was that animals from Jamaica would not, at present, be required.

—————:O:—————

JOHN CROWS.—It has been proved beyond the shadow of a doubt that the John Crow is a carrier of Anthrax. This bird, however, should get no chance of carrying infection, as immediately an animal dies of any disease at all, it should be burned, or buried as deeply as possible. The results of investigations have shown that the Turkey-buzzard, which we here call the "John Crow" is capable of carrying infection for long distances and creating fresh foci in pastures new. In this island the John Crow is now a useless bird and ought to be exterminated.

An American Paper says "losses due to diseases of live stock on American farms are appalling," and gives the cause as ignorance and carelessness.

—:O:—

TICKS.—Two Dipping Tanks are now in use, one at Hope Stock Farm, and the other at Mr. Henry Conran's pen at Woodfield, St. Ann, where a large number of cattle are kept. This method of getting rid of ticks will be found to be more expeditious and economical in the long run than washing or spraying, though where only a few head of cattle are kept, spraying will still require to be done.

—:O:—

DOGS.—The most dangerous animals to have about the place, as far as parasites that may lead to harm of human beings and domestic stock, are concerned, are dogs. They are usually infested with fleas and very often no attention is paid to getting rid of these or to keeping the dogs clear as far as possible. Modern veterinary experience goes to show that dog fleas are the hosts of Tape Worms, and that the dogs themselves, pigs, sheep, as well as human beings may be affected with dangerous troubles, all arising from the dog flea. We will not enumerate what these troubles are, but we would advise everybody who keeps dogs to treat them once a week with some flea killer. Dog fleas are hard to kill, but it is necessary to get rid of these parasites.

—:O:—

POULTRY NOTES.

APPRECIATION.—I may say that the success of my poultry yard with turkeys as well as fowls is entirely due to your "Poultry Notes" in the JOURNAL. My fowls are not kept in pens, but allowed free run, and with a brook across the lawn, they have all the pure water they need, so are pretty healthy, unless the weather is very bad, and then I dose them beforehand to avoid any calamities in the way of roup, etc.

H. A. M.

St. Ann's Bay.

—:O:—

Fowls will soon be getting through the moult. Some moult a great deal earlier than others, commencing in August—a few even in July—but by the end of October the majority should be through the moult. Hens that commenced to moult early should now be looking to lay again. We notice that some fowls have not yet commenced to moult, at the time of writing—the end of September—some are still on the way, and that some are quite through the moult.

I have advised before this that a little sulphur be added to the food of the fowls as it helps them to feather; also, some simple stimulants to be given to the fowls in their food (failing a regular tonic or condition powder made up specially for fowls, and of which there are some that are really good) such as powdered ginger, pepper or mustard. We prefer to use powdered ginger. The dose of this or mustard to be used is one teaspoonful to each pint of soft food.

One of the most difficult things to get done in connection with poultry that are kept in the ordinary country style here, is the separation of the sexes. It always pays, however, to have an enclosure in which to put up young cocks, and so long as they are kept busy with a good scratch heap, they will develop bone and size, and then lay flesh over the bones with economy. The one or two selected for stock purposes will be more vigorous, and the rest selected for the table will grow bigger and be easier fattened. This is the time to begin to watch young cocks and select those to be kept, if it is not necessary to introduce fresh blood. If this is necessary, the best can be exchanged for the best of some other person and some fresh blood introduced from reliable sources.

The Hope Stock Farm have been selling cockerels and pullets from their imported stock of different breeds at very reasonable prices.

BROWN OR WHITE EGGS.—There is practically no difference between a brown-shelled egg and a white-shelled egg. The preference for brown or white eggs by particular people is only a fad. The feed, however, makes a great difference in the contents of an egg.

"The flavor of even a fresh-laid egg, and its keeping qualities, depend largely upon the diet of the hen that laid it. Verification of this last suggestion is a simple matter. If your hens now have access to unclean food, exclude them from it for a week, feed them only clean wholesome food, free from strong flavors. At the end of the period reserve some of the eggs, then for a few days give the hens a small amount of onion, celery, boiled cabbage or any vegetable matter having a decided flavor, and test the flavor of the two lots of eggs.

The "certificate" egg is a coming market commodity; how soon it will come depends upon the pure food experts."—*Farm Journal U.S.A.*

Very true. The common or market egg as sold in Jamaica is usually so small that it is a dear bite, and what the fowls have been fed on is a matter sometimes better not discussed.

Eggs should be sold by weight, and be guaranteed fresh and clean fed.

—:O:—

COMMENTS.

"WET SUGAR."—Otherwise "pan sugar" or "settlers sugar" the product of the small sugar mills, being simply the cane juice boiled down sometimes to a soft soapy consistency, dark as mud, sometimes to a light golden coloured sugar. The production for this year owing to good seasons is great but the demand small because most people have got into the habit of using Brown or White Albion Sugar. Even those who make the "wet sugar" and grumble at the low price, do not themselves use their own product but buy "Brown Albion" in the shops. Sugar estates where rum was of more value than sugar and when their own crops of cane were short, used to purchase this tin sugar. This year, however, most sugar estates will have good crops and may not purchase. Again in some districts the sugar made is so mucky that it can hardly be sold in the market and is even no use for making rum on estates. Good wet sugar cannot be made without the use of temper lime, and almost every settler who boils sugar in the parishes of Clarendon, Manchester, and Trelawny, regularly uses temper lime. In the other parishes some use it, some do not, and the result is poor sugar. A great deal depends upon the soil as to whether the sugar is dark or light,

Then again there is often trickery in putting up "wet sugar" for market. Of course this trickery always is discovered and besides hurting the trickster, unfortunately hurts those who put up an honest product. We have been informed of cases where there was a layer of mud in the bottom of the tins, stones in the tins, and where dark mucky sugar was capped with nice light coloured sugar, i.e., 2 or 3 inches of the latter at the top.

Before we can do anything to help the "wet sugar" industry, it is necessary for a regular campaign to be instituted by our Branch Societies against everything in the way of trickery, and that every member of a Branch Society who makes sugar promises to use temper lime and to make good honest sugar.

—:O:—

COCOA AND COFFEE DRYERS.—We beg to bring to the notice of our readers, the advertisement of Messrs. Wm. McKinnon & Co., Ltd., Spring Garden Iron Works, Aberdeen Scotland. There has been some trouble in finding a firm that could make substantial coffee and cocoa dryers at a very moderate price to suit those with medium sized cultivations. Messrs. Wm. McKinnon & Coy's. make efficient cocoa dryers from about £50 upwards.

GUINEA GRASS.—Ants are very fond of Guinea Grass seed, so that when it is planted they carry away sometimes as much as 75 per cent; sometimes none germinates at all through their attacks. Before sowing Guinea Grass seed mix it with equal parts of wood ashes and fine earth, then sow broadcast. This seed is available now.

—:O:—

WAR GIFTS.—All those who want to send gifts to relatives in the Army who may still be in the United Kingdom, can procure these through Aston Gardner & Co., Kingston, as previously advised. We are not able to send individual gifts free of cost any longer; we can only send to Hospitals. Messrs. Gardner will provide fruit and preserves through their house in England.

—:O:—

SHOWS.—The Hopewell Branch in Hanover intends holding a small Market Show on the 9th November. The profits are to go to the Socks Fund for soldiers. The President, Mr. E. E. Melville, is one of the few men that can knit socks, and he has sent over 2 dozen pairs of socks to the soldiers already; he is also teaching a class of girls. This is good work.

—:O:—

CITRUS FRUIT.—The storm seemed to have done some good in another direction than those mentioned before. It has practically cleared off the Sooty Mould that was causing so much damage to citrus trees. The insects which cause this Sooty Mould that covers the leaves of orange trees will return but they can be prevented by the timely use of a spray

ORANGES.—Messrs. James Robertson & Sons, of the Golden Shred Works, Catford, London, desire to do business in Sweet and Bitter Oranges, if any one here cares to enter into communication with them. We have plenty of fruit; the trouble of course, will be the direct shipping.

—:O:—

APPRECIATION.—It is a source of much pleasure to the writer to feel justified in saying that each year your publication becomes more interesting, complete and valuable, and out of more than thirty publications that I receive monthly there is none I value more highly or read with more interest.

J. A. S.

New Haven,
Conn., U.S.A.

—:O:—

TANSY FOR HOOK WORM.—Another native product—a common weed—can be used to advantage. We wrote in a previous JOURNAL that owing to the war, and being a German preparation, although from an Indian plant, Thymol, used as a vermicide for worms in horses and considered the most useful specific for Hook Worms in human beings was very dear. Tansy tea has always been locally used as a specific for worms in horses. Now a local Doctor says it is equally of use for the dreaded Hook Worm in human beings, but the decoction or tea must be the right strength. This knowledge is of great value.

BIRDS AND INSECTS.—Few of us know the value of birds and insect destroyers although we may see some varieties every day of our lives. There are no doubt some birds that few have a good word for and which might be better killed out such as the John Crow and the Chicken Hawk. There are others that cause us a good deal of loss one way or the other and whose delinquencies are very obvious while the good these birds may do is not readily observed. And there are others which perform nothing but good service to the agriculturist and yet these are often killed indiscriminately, simply through lack of knowledge of their usefulness to agriculturists being known, understood, and appreciated.

* * * * *

Parroquets, and parrots, are only protected during the breeding season—from the 1st March to the 15th August. They are very pretty birds and we would be sorry to have them destroyed until they became scarce; but they are not insectivorous and we do not know of any good they do to the planter. We should like to hear something in their defence.

We do know that parroquets are very destructive to corn while it is ripening in the fields, by tearing open the husks and eating the grain.

* * * * *

“John Crows” are not protected at all and can be destroyed at any time—popular belief to the contrary, notwithstanding.

On the contrary, the common “Chicken” Hawk, otherwise, the Red Tailed Buzzard (*Buteo Borealis*), is strictly protected under the Law all the year round; but why, those who know something about the diet of birds cannot understand.

The owl is acknowledged to be the best ratter we have, and no one cares to destroy an owl. The Chicken Hawk—well-named—hunts only by day (rats and mice roam by night) and his chief diet, to about 99% is birds, and in some districts he is the scourge of the Chicken-yard. We should like also to hear anything in his defence.

-----:o:-----

FOOD SUPPLIES.—Whatever may possibly happen to our Oversea trade (our exports and imports) through war, or the manipulations of speculators, or trusts, or combinations, or rings; let us make sure that we have plenty of food to eat here; and then we can view the general situation with more equanimity than if we were hard up for something to eat. Let us have plenty of corn, yams, sweet potatoes, cocoas and vegetables, together with milk, eggs and our own beef, mutton, pork, fowl and rabbit, and we can keep smiling.

What nonsense to buy imported salt beef from a barrel in the stores at 10d. to 1s. per lb. in the country while fresh meat can be had at 4½d. to 6d. per lb. and cattle not freely saleable. What about salt beef put up here?

-----:o:-----

CORN.—There is a great deal of misconception about the drying of corn. Some merchants actually insist that the corn sent them should weigh 62lbs. to the bushel; on the contrary, we insist that we do not want corn that is over 60lbs. to the bushel, and when our seed corn comes here it is dried again and we issue it at the weight of 58lbs. to the bushel. At this weight it is really dry and will keep. A consignment of seed corn that came to us weighing 60lbs. to the bushel

after being dried for three hours in the hot sun of Kingston shrunk $1\frac{1}{2}$ lbs. to the bushel, so that it could not have been perfectly dry when sent as dry. Then again, corn should be dried first in the cob and it will then shell out easily. The seed corn that we keep for ourselves was never in the sun at all (as the weather was wet), but hung up in the cob in a shed where the breeze blew through; on some of it being required, it shelled out easily without any husk at the tip and weighed 58lbs. to the bushel, and on the grain being put out in the sun for a day it still weighed 58lbs. to the bushel, so that it was perfectly dry. No seed corn can be used as such unless it has been dried in the cob before being shelled out. Red corn weighs a little more per bushel than yellow corn.

SHRINKAGE OF GRAIN, ETC.—Very little seems to be understood about the loss that occurs in curing and keeping over grain, such as corn.

The ordinary weight of corn offered in August and early September or January and February is 64lbs. to the bushel, in the local markets as brought in by the people 66lbs.

No corn can keep long if transported in bags and stored without being exposed to sun and breeze and cured, when the weight is more than 60lbs., to the bushel. The American corn is invariably 56 lbs. to the bushel and it is not usually kiln dried.

Then if a man thinks he is buying fresh corn cheap at $2/6$ a bushel, and it weighs 64 to 66 lbs. per bushel if he keeps it he loses at least 4 to 6 lbs. weight on each bushel. If he does not sun it, it will not keep and he has to add the cost of sunning.

A bushel of well dried ears weighs 80lbs., but as these come from the field they weight 100lbs. and sometimes over.

There is also a great shrinkage in the weight of Irish Potatoes. In keeping 3 months there is a loss of nearly one-third.

CORN MILLS.—In spite of the storm, which to a large extent spoiled the April planted corn, there has been a large production this year. It is simply ruinous for small growers to sell cheap. Later on, buy back dear; or be selling corn cheap and at the same time, be buying American corn meal almost every day of their lives.

Every householder should have a small corn mill, or better still bring co-operation to bear and have a good strong mill in the district capable of grinding corn into meal quickly and efficiently. A good many of our Branch Societies where the members live near to each other are thus providing themselves with good corn mills. We have tested a good many makes and have found some mills that on one crushing can grind corn into a fine meal. We are getting some of these to order. To make one's own cornmeal saves at least one-third, sometimes one half of the price of buying this useful food.

—:O:—

KEEPING OF SEEDS.—In a northern country where there is only a short period of hot weather some seeds keep for years, but we find that here they do not keep months, and that makes our attempts to keep constant supplies of fresh seed in stock very difficult. For instance red beans, in February were already losing their vitality by August, some grow vigorously in our seed boxes, some weakly. We

have not the best equipment of course or the best place to keep them and the heat of our store is too great.

We have seed boxes and make tests of our seeds periodically. Another difficulty in shipping seeds like corn and peas and beans in quantity is that the wharves and railway sheds usually swarm with weevils which sometimes get at the seeds, even when they are weevil free when leaving the office. In future we shall treat each lot of a bushel of corn or over with Napthalene as it leaves.

—:O:—

QUASSIA.—In the Bulletin of the Department of Agriculture (Vol. II., No. 8) lately published, Mr. A. H. Ritchie, the Government Entomologist, discusses the subject of Quassia as an Insecticide. Quassia is the Chemist's name for our Bitter-wood and it is often used as an Insecticide in combination with some sticky product like Whale Oil Soap. A decoction of Bitter wood used to be in common use for soaking corn before planting to keep off attacks of mice and rats, but it has been very largely superseded by the Kerosene and wood ash mixture.

—:O:—

WAR GIFTS.

Those who sent this fruit and other fruit in former consignments (whose gifts have all been acknowledged in this JOURNAL) should feel gratified. Others who have fruit and have not yet sent gifts of oranges and grapefruit, limes or lemons, may from these letters of acknowledgement learn a little as to how wounded soldiers racked with pain and fever appreciate a few oranges and grapefruit (of which we have such abundance) or a glass of fresh lemonade.

One Kingston merchant who went to stay a few weeks in Manchester, and saw some of the boxes of citrus fruits going forward as war gifts—always to be noticed from our rather striking labels—was so much impressed that he gave us £5 to send oranges and grape fruits for him.

If it could be more brought home to everyone here—seller and buyer alike—what economies, what self-denials, what hardships, what self effacements, are cheerfully and patiently borne by the German people at the present time, and which to some extent have been accepted in Great Britain, and perhaps most of all by the middle class from the first few months of the war, and are gradually being pressed upon all classes, there would be more give and take here. So far, the effects of the war have been very little felt in Jamaica; ships call at and leave our ports; we have less shipping of course, but not very much different from usual; passengers come and leave by these steamers; by every steamer our young men go to enlist; our local food supplies are abundant, and we have plenty to eat and drink. The great majority sleep at peace; only those who have relatives fighting the Empire's battles, and those who realize the strength of the enemy, who know Germans—and the tremendous issues at stake, are anxious, and being anxious do their little bit to help to make the Empire safe and prosperous.

How would anyone here like to live in Jamaica under Germans from Germany after a war like this ?

SHIPMENT PER S.S. "CAMITO," SEPT. 13TH, 1915.

A.—INDIVIDUAL GIFTS (to a Hospital, etc.)

Donor & Address.	Gift.	Addressee.
Mrs. L. Johnston, Brown's Town	2 boxes Cigarettes (containing 1,000 each)	The Herbert Hospital, Woolwich, Kent, Eng.
Mrs. Roots, Secretary Victoria League, Kingston	1 bundle (8) Walking Sticks	Red Cross Head Depot, London
Miss Doris Chandler, Highgate	1 box Miscellaneous Preserves	Lance-Corpl. H. Mannell No. 392, Military Railway Police c/o Army Post Office, S.I., British Exped. Force, Abbeville, France.

B.—GIFTS FOR GENERAL DISTRIBUTION.

1. Preserves.

Donor.	Address.	Quantity.	Kind.
Miss I. Branze,	Richmond Park, Spaldings	2 tins (20 lbs.)	Guava Jelly.
The Women's War Committee	St. James, Ja.	2 tins (20 lbs.)	Banana Jam
ditto	ditto	2 tins (20 lbs.)	Pine Jam
ditto	ditto	1 tin (10 lbs.)	Mango Jam
ditto	ditto	1 tin (10 lbs.)	Orange Marmalade

2.—Citrus Fruit.

Mrs. Wynne	Brokenhurst	15 boxes	Oranges
	Mandeville	1 box	Lemons
A. C. Westmoreland	Annotto Bay	23 boxes	Grape Fruit
J. M. Leiwis	Yallahs	1 barrel	Limes

3.—Walking Sticks (shut out from the shipment per s.s. "Carina," for lack of space.)

Donor.	Address.	Quantity.
W. Hyde Macauley	Spaldings	300 Sticks
F. E. Nesbitt	Balcarres	20 "
Miss V. McDaniel	Stony Hill	14 "
Fred. Hart	St. Ann's Bay	41 "
Per Miss E. E. Swaby,	Hiattsfield, Ocho Rios,—	
Stephen Marsh, Phillip McKoy, David Nelson, John Palmer, R. Williams, J. Harvey		200 "
Cambridge-Woodford Branch		2 bundles
Mrs. Deerr	Melrose, Half Way Tree	100 Sticks
Hon. H. Cork	Port Antonio	2 bundles
Baxters' Mountain Branch		40 Sticks
M. E. Muirhead	Mandeville	2 bundles
Brandon Hill Branch		2 bundles

(These were repacked into 28 bundles containing 1,438 sticks.)

:O:

SHIPMENT PER S.S. "CORONADO," SEPTEMBER 27TH, 1915.

A. Miscellaneous Gifts for Hospitals, etc.—

Donor & Address.	Gift.	Hospital, Etc.
Miss Phyllis Cork, per Mrs. H. Cork, Parkmount, Port Antonio	1 Case Miscellaneous Preserves	Carriiden House Hospital, Bo'ness, Scotland.

Mrs. E. M. Wilson, Long Harbour, Montego Bay	300 Surgical Sponges, 5 doz. Bandages	French Wounded Emergency Fund, 34 Loundes Square, London, S. W.
Per Mrs. W. W. Wynne, Mandeville	{ 1 parcel 36 small pillows	Lady French.
Mandeville Ladies' Working Association	{ 1 parcel 1 doz. full size pillow cases 1 parcel 100 bags for Soldiers.	Red Cross Society (Q. M. N. G.) Lady Smith-Dorrien.
Miss M. Symmonett, 99 Church St., Kingston	1 box contg. 16 Children's Warm Dresses	J. Navaux, Esq., Hon. Sec. Belgian Relief Funds, 32 Goswell Rd., London, E.C.
Miss G. Smith, "Hermitage," Malvern	1 parcel contg. 6 small pillows	The Lewisham Military Hospital, Lewisham, London, S.E.
Mrs. R. Craig, Savoy, Chapelton	5 boxes Oranges 4 „ Grape Fruit 1 „ Limes	} Gray's Hospital, Elfgin, Scotland
ditto	5 „ Grape Fruit 4 „ Oranges 1 „ Limes	
Mrs. H. E. Crum-Ewing, Knockpatrick, Mandeville	1 „ Oranges	Gordon Castle, V. A. D. Hospital, Fochabers, Scotland Barra House Hospital, Largs, Ayrshire, Scotland.

B. Citrus Fruit for General Distribution among Hospitals.—

Donor & Address.	Quantity.	Kind.
Ronaldson & Thursfield, Stone's Hope, Newport	20 boxes	Grape Fruit
Mrs. W. W. Wynne, Brokenhurst, Mandeville	{ 14 „ 4 „ 1 „	Oranges Grape Fruit Lemons
Mrs. H. E. Crum Ewing, Knockpatrick, Mandeville	6 „	Oranges
Conrad Watson, New Yarmouth, Vere	24 „	Grape Fruit
Henry Maxwell, Friendship, Myersville	{ 1 „ 3 „	Grape Fruit Limes

C. Walking Sticks.—

Donor.	Address.	Quantity Sent.
Edward Codnor	Southfield, Falmouth	1 Bundle
M. E. Muirhead	Mandeville	4 bundles
Frankfield Branch	Clarendon	1 bundle
Central St. Mary Branch (per J. A. Banks)	Richmond	3 bundles
C. Z. Marzink	Richmond	1 bundle
H. Rudolf	Hampstead	2 bundles
Mrs. F. G. Lopez	Spanish Town	4 bundles
G. R. Smith	"Hermitage," Malvern	2 bundles
An Anonymous Donor		9 bundles
An Unknown Donor		1 bundle
Rev. W. W. Hardie	Coleyville	1 silver mounted Ebony Walking Stick.

(These were repacked into 29 bundles, containing 916 sticks, all shipped to "Tit-Bits," London.)

The following is an acknowledgement sent to the Hon. H. Cork, of previous consignments received:—

Sir,—I beg to enclose you a copy of a letter I have received *re* the generous gifts made by various parties in Jamaica for walking sticks for the wounded soldiers.

and I shall be glad if you would be good enough to make public in your order that it is most desirable to obtain sticks with crooked handles.

Thanking you in advance for inserting this letter,

I am, etc.,

(Sgd.) HENRY CORK.

Park Mount, Port Antonio,
September 28th, 1915.

THE LETTER.

London, August 16.

Dear Sir,—I have much pleasure in advising you of having now taken delivery of your splendid consignment of walking sticks towards the "Tit Bit's" Fund.

Allow me to offer my warmest thanks to you and those who have assisted in providing such an excellent gift.

You will, I am sure, be pleased to know we are receiving a magnificent response to our appeal which is enabling us to provide thousands of our splendid soldiers with a very essential support when about to leave hospital, and their grateful letters of thanks show how much the gifts are appreciated

Again with many thanks and all good wishes,

I am, etc.,

(Sgd.) M. BLAKE, (Publisher.)

INDIVIDUAL GIFTS.

READERS PLEASE TAKE NOTE.

The West India Committee,
15 Seething Lane,
London, E C. Eng.
13th August, 1915.

"Your former letter confirmed our exchange of telegrams regarding individual gifts. As already stated no gifts can be forwarded free to individual soldiers or sailors. Under certain conditions small packages can be sent to individual prisoners but there are conditions as to size (weight must not exceed 11 lbs.) and goods must not be packed in tins, etc. In the case of dutiable goods bonds have to be taken out and there is a difficulty about securing release as it is impossible in many cases to discover whether the goods reach their destination. In view of the fact that our staff is already reduced owing to the War I am very sorry that we could not possibly undertake the work. It would be in every way much better for relations and friends of prisoners to send us money with which to purchase articles which can be sent out from here from one of the agencies or stores already handling this kind of business. If this appeals to you let me know. It will only be necessary for you to send (1) the name of the donor (2) the kind of gifts to be sent (3) the name of the addressee, and (4) the remittance for cost. We will then buy and despatch gifts accordingly."

(Sgd.) ALGERNON E. ASPINALL,
Secretary.

BRANCH NOTES.

FAR ENOUGH (Clarendon).—A meeting was held at the Good Hope Schoolroom on Thursday, 26th August, 1915, when there were present, the President and Vice-President; the Instructor, the Secretary and Treasurer, ten other members and two visitors. It was proposed and agreed to that in future all monthly meetings be held on the last Thursday in each month. Relative to the matter of lumber on Crown lands the President moved a resolution which was agreed upon and the Secretary was asked to send a copy of the resolution to Mr. Barclay and by him to the Surveyor General. "It having been brought to the notice of Far Enough Branch that there

are on the Crown lands adjoining this and nearby districts a large number of blown down and fallen hardwood trees suitable for sawing up into Boards and scantlings, and in view of the fact that many of the peasant proprietors and small householders are anxious to improve their houses in accordance with the advice and encouragement received from the Jamaica Agricultural Society, but are unable to do so owing to lack of lumber, it is hereby resolved that the Government be approached with the view of ascertaining whether they would be willing to give those trees to bona fide small householders or sell them at a reasonable rate which would be within the reach of the smallest householder.' The Instructor gave a very interesting address on the curing of coffee, and the planting and curing of Cocoa, and also advocated the planting of cocoa instead of bananas. The Instructor complimented the President on the interest that he takes in agriculture. The President proposed a vote of thanks to the Instructor, which was seconded, for his able and interesting address on cocoa planting and curing. The delegate, Mr. Benjamin Thomas, who went up to Kingston to the Half-yearly meeting of the Parent Society gave a very interesting report of the meeting. It was brought to the notice of the meeting, that since the hurricane of the 12th and 13th August several cases of Praedial larceny have been reported, Mr. Henry Smith, of Good Hope, Mr. Benjamin Thomas of Rodon Hall are nominated to be appointed as Authorized Persons. Mr. Benjamin Thomas for Rodon Hall district and Mr. Henry Smith for Good Hope district. The meeting was adjourned to the 30th September, 1915. I. C. ROBERTSON, Secretary.

UPPER METCALFE (St. Mary.)—The monthly meeting was held in Brainerd School Room on the 26th August. The President, the Instructor and Mr. Watts, his Assistant, the Secretary, fifteen members and a few visitors were present. After a few explanatory remarks from Mr. Cradwick, his letter to the Society respecting the getting of cocoa plants from Castleton Garden was tabled. The Society decided to purchase a set of pruning tools for the use of members on easy terms. Mr. Cradwick was asked to purchase them and Mr. Bell appointed custodian on their arrival. The Instructor addressed the meeting. He read and explained the rules and prizes of the St. Mary Cocoa Cultivation Competition, and advised competitors to pay in their entrance fees at once so that he could be placed in a position to render valuable help where necessary. Mr. Cradwick then blamed members who had not turned out to discuss the proper means that they should adopt to restore their cultivation. He was willing to make any representation necessary that the meeting would adopt. Mr. Edwards advised members who had not placed all their eggs in the banana basket to put their shoulder to the wheel and endeavour to restore their cultivations without the aid of loans as far as was compatible with reason and common sense, as he was in a position to state that there were many small settlers in and around the district of Brainerd who were doubtful about the ownership of their small holdings, because of recent loans. After discussion the meeting decided that, at least for the present, they would make no representation to the Government for loans. The Instructor expressed satisfaction and complimented the members on their decision. He advised that members combine and start their own co-operative Loan Bank where they could get money to borrow when needed. The President then gave notice that at the next meeting he would move a resolution for the establishment of a "People's Co-operative Loan Bank in the district of Brainerd. Meeting adjourned till 4th Wednesday in September. W. T. EDWARDS, Secretary.

MR. REGALE (St. Mary.)—The monthly meeting was held on the 27th August. Sixteen members and the Assistant Instructor, Mr. Watts, were present. Mr. Watts impressed upon the members the necessity of getting walking sticks to be sent to the wounded soldiers. Mr. Geo. Roberts brought six. Read financial statement from the Treasurer showing £2 in hand. It was brought to the notice of the members that no meeting of the branch appeared in the JOURNAL for some time and the Secretary was instructed to ask Mr. Barclay that his report be published in September's JOURNAL. Read letter from Mr. Cradwick suggesting to members to get cocoa plants from Castleton Gardens and how they are to be got. Matter is under consideration for next meeting. Mr. Watts here referred to the cocoa competition to come off in 1916, how the marks are distributed, and what should be done to secure a prize. In dealing with effects of the latest storm he pointed out the harm done to standing banana trees by removing the broken leaves; the way to find out suckers strained by the wind; and the weak roots that come from suckers left when banana roots are turned over. It was pointed out that rot follows the broken stems of cocoa very quickly hence the necessity for immediate attention. In the discussion "Corn or sweet potato, which is more profitable?" corn won by a large majority. Subject for next meeting: Corn and Peas versus Cane. This branch is satisfied that the district can tide over without applying for a loan. B. THOS. ATKINSON, Secretary.

NEW ROAD (Westmoreland).—The monthly meeting was held in the Schoolroom Aug. 31st., 1915. There was a fairly large attendance, including the Instructor, who had been around the people's fields seeing for himself their losses caused by the hurricane, and encouraging them to clean up and start a fresh. The yam crop in this district having been completely lost, the Instructor distributed quite a large quantity of pumpkin seeds and promised liberal supplies of sweet potato slips and cassava sticks—sweet and bitter—in order that the people might proceed at once with the planting out of quick increasing crops and be enabled to meet the hard times that are likely to follow in the wake of the hurricane. The Branch decided to obtain a supply of cocoa seedlings and cane tops of improved variety from the Montpelier Nursery for distribution among the members and (to show that they are by no means downhearted and have not allowed their own troubles to blind them to those of the Empires') have planned a patriotic meeting (to be held on a date to be named) for the purpose of raising subs^s towards the Jamaica War Contingent Fund and to pledge their determination to carry through the war to a successful end. Mr. Briscoe was instructed to find out the cost of a good corn mill with a view to the purchase thereof by the Branch for use in the district. We chronicle with profound regret the death of J. A. S. Monaghan, Esq., one of our most esteemed members. The late gentleman took a keen and practical interest in agriculture *vide* his own fields, and his utterances at our meetings were invariably such as to command the attention of all. Sincerest sympathy is extended to his widow and children by the Branch.

H. C. GOODIN, Secretary.

CAMBRIDGE (St. James.) —The meeting was held on the 4th September. Present: Messrs. Myers (President), Secretary, Treasurer, Mr. Briscoe (Instructor), and 11 other members. Mr. H. A. Stephenson was elected a member. Mr. Barclay's letter *re* Pease and Corn was read and discussed. Mr. Briscoe gave a clear and interesting account of the last half-yearly meeting of the Society and was heartily thanked for same. The Instructor expressed his sincere sympathy with the sufferers from the hurricane and encouraged them to try and repair their cultivations and put in catch crops, and also to pay as much attention as possible to the cultivation of cacao.

R. M. ARNOLD, Secretary.

GLENGOFFE (St. Catherine.)—The regular monthly meeting was held September 7th, 1915. There were present: A. P. Hanson, Esq. (Instructor), about 25 members, the Reporting Secretary and the Secretary. Mr. Carter was welcomed as a visitor and Secretary from another Branch, and was given the privilege of the floor. As arising out of the minutes the two resolutions passed at the last meeting—one dealing with the training of Reformatory boys and the other dealing with the necessity for legislation for use of double-faced scales by shop-keepers, were again discussed. It was however decided that the former should be sent back to Mr. Barclay and to the member of the Legislative Council for the Parish; and after the discussion of the second, the following resolution was put to the meeting and carried *nem con*:—"Resolved that the Government be approached through the Parent Society begging that the scales in common use be dispensed with, and double-faced scales be introduced instead." Messrs. C. Palmer, F. F. Greenwood, A. Rennalls and Dixon reported the fact that they are not in receipt of their JOURNALS. This fact brought on a discussion which concluded with the suggestion that the President should keep a receipt book from which to give the members receipts as they pay up their subscriptions. This was agreed to; the Secretary was asked to forward the names of all members who do not get their JOURNALS early enough. At the suggestion of Mr. J. Smith that there should be among the members of this Branch some kind of system for mutual pecuniary aid in the shape of either a Self-help Society, an Agricultural Loan Bank, or some such system upon which the members could fall back for help especially after a visitation such as we had in the late storm of August 12th last., the following resolution was put and unanimously carried after a very useful discussion:—"Resolved that a Bank with a Savings Department be organised under the auspices of this Branch Society, and a Committee be appointed to meet on the 13th instant and to report to the next meeting on the subject:—The meeting then listened to a very instructive and helpful lecture from the Instructor A. P. Hanson, Esq., on the "Repairing of the Damage fields after the recent storm." Among some of his remarks were the following:—"The storm could have been much worse, it was very much different from that of 1903—not being a cyclone. We have very many questions to face: Is it worth our while to cultivate bananas? We have scarcely had two good years in succession. If we repair damages as quickly as possible we may re-over all our losses in one good year. Go through and prune; cut away wrapping leaves; clear away fallen trees; sink sword suckers; cut out weedy plants; plant straight rows through the fields which after a time will replace all the

old weak roots. We may reap many a good bunch within a year to come for home consumption if not for the market. The hurricane has set us an example, let us go through and prune. As to cocoa, Mr. Hanson said that the last crop was prolonged and bountiful; as a consequence this crop will be late—a very fortunate circumstance from the view point of the late storm; but strict attention to gormondisers should be kept up, that being a great source of danger to the coming crop. Advantage should be taken of the beautiful seasons following, to plant cocoes (tanix) peas, corn sweet potatoes and other vegetables. He also advised the members to face the situation by cooperation. A vote of thanks to Mr. Hanson was moved. Mr. Henry, an "Authorized person" had no report to present which showed improvement in that direction in his district. It was agreed that the Society obtain a corn mill for not less than 40/- for the use of the Branch. The meeting then adjourned to the 1st Tuesday in October.

J. R. BRYAN, Reporting Secretary.

SEAFIELD (St. Catherine).—The meeting was held in the Seafield Schoolroom on the 7th September. There were present: Mr. A. S. Ross, President; the Instructor (H. L. Mossman, Esqr.), fifteen members and six visitors. Owing to the inclemency of the weather, the report of the half-yearly meeting held in Kingston in July could not be given until at this meeting. This was duly done, to the satisfaction of the Society by Mr. R. S. Nugent, the delegate. Owing to the recent hurricane the Instructor devoted his attention chiefly to the value of paying much attention to the keeping up of permanent crops; the planting of catch-crops; and the folly of putting all the eggs in one basket in the shape of the wholesale attention that is being given to cultivating bananas. He principally dealt with the cultivation of corn and sweet potatoes. Being in the district, from 12 o'clock in the day, the Instructor spent his time up to the meeting hour in practical demonstration; in finding out whether previous lessons given were being followed, and what was necessary to be done at once, so as to ameliorate existing conditions in the near future. An instructive lecture was given on "how to cultivate sweet potatoes," slips being brought into the room to show the way these should be cut, the part of the slip to be chosen and how these were to be placed in the ground. After the lecture several questions were asked and due explanations given. As a result of previous lectures a sample of corn grown by Mr. A. S. Ross was shown to all the members. This corn was obtained from Mr. Barclay. Mr. Ross planted a little over two quarts on about six square chains of land and reaped about twenty bushels. After some comments by the President and a hearty vote of thanks to the lecturer, the meeting came to a close.

C. E. JOHNSON, Secretary.

DARLINGTON (Westmorland).—A meeting was held in the St. John's Schoolroom on Friday, the 10th September, at 9 a.m. Present: J. W. Mennell, Esq., President; R. C. Somerville, Esq. (Instructor), eleven members and the Secretary. Mr. T. F. Ford was proposed and elected a new member. Mr. Somerville, on the President's behalf, said: "That the President went to Kingston with the view of attending the Half-Yearly General Meeting, but was disappointed and had, therefore, to return to Mr. Barclay, the Railway ticket sent him." The subject of Praedial Larceny was lengthily dealt with and Mr. H. C. Goodin would have first offence to be cut off. In answer to many questions asked the Instructor, satisfactory replies were given. He promised to get the baking irons by next meeting. A lengthy discussion on Cassava took place. The President said years ago Cassava was usually grown to a larger extent than now but perhaps this has been caused from the destructiveness of rats. The members present were told by the Instructor to read carefully an article written by Mr. Ogilvie in recent JOURNAL re pigs. It was moved and carried:—"That the Agricultural meeting of this branch be held every alternate month instead of monthly and that meetings be held alternately at Enfield and St. John's School houses." Meeting adjourned to Friday 12th November next, at 9 a.m., in the Enfield Schoolroom.

J. H. HEDLEY, Secretary.

WALDENSIA (Trelawny).—The regular monthly meeting was held on the 10th September. President in the Chair, 11 members and one visitor present. After confirmation of the minutes of July meeting—no meeting held in August owing to the storm on the day fixed, and bad weather—the subject of the present situation of business owing to the failure of the banana trade, was lengthily discussed, as also the purchase of a Society's corn mill. It was decided to purchase one for thirty shillings (30/-), and the Secretary was authorized to draw the amount from the Treasurer and forward same to Mr. Barclay. The meeting discussed at length the subject of purchasing an Angora Ram, and regretted to be informed that even a half-bred one could not be obtained. Questions respecting the parties recommended as Authorized Persons for the District came up and their names were given in full, as:

Thomas Morgan Beckford, Waldensia, Falmouth; and Henry Philip James, Sherwood Content, Falmouth. The order of the meeting was suspended for a few minutes to give expression of sympathy for the loss the Society has sustained, in the death of one of its most interested members, the late Conway Whiting, Esq., of Falmouth. The President's query, viz., 'What is to be done to court the interest of some members and the community in general for the better working of the Society,' was discussed at length, and a few members thought that frequent visits to the fields of the peasants by the local Instructor might improve the present condition. The meeting here adjourned.

N. A. LIVINGSTON, Secretary.

AVOCAT (Portland).—The regular monthly meeting was held on the 11th September. Present: Ten members, some visitors, W. Cradwick, Esq., Instructor, Messrs. Gunter and Watts, Asst. Instructors, and the Secretary. The Secretary's report *re* Half-Yearly General Meeting was presented and discussed, and the following resolution was moved and seconded: "That the Parent Society be informed that in consequence of the late arrival of the passenger train in Kingston on the occasion of the last Half-Yearly General Meeting, this Branch considers that the loss of time and the expense incurred in sending a delegate not justified, as much as this Branch appreciates the fact of H.E. the Governor, taking the Chair, at the meeting and the evident deep interest in the proceedings, and this Branch respectfully asks that the Parent Society take steps to have arrangements made which will make it possible for the delegates from the northside branches to attend the meeting effectively in the future." Mr. Cradwick gave a few helpful hints on the cultivation of cocoa and corn, and favours the idea of this Branch securing a corn mill. Mr. Gunter arranged for demonstration at the Avocat Mission at 9 a.m. on the 12th prox. It was agreed that the Rev. Father Pohlman S.J., be asked to be President of the Branch. Meeting adjourned till the 9th prox. at 3 p.m.

F. EMIL NESBITT, Secretary.

DUANVALE (Trelawny).—On the 13th of September, 1915, the regular monthly meeting was held. There were in attendance: T. James, Esq., 1st. V.P., in the Chair, Treasurer, Mrs. Ruth Clark, The Secretary, Messrs. E. A. Arnett, M. Rennie Agricultural Instructors and 22 other members and some visitors. Mr. Hawkes was unanimously elected another V.P. Mr. Hawkes accepted the position, and replied suitably. Mr. Arnett next gave a very instructive and interesting lecture touching on the following subjects:—The recent storm bananas and corn. He sympathized greatly with the banana growers, owing to the loss they have sustained through the storm, but was glad that they did not suffer as in other years past, and he hopes that by July next year, things will have righted themselves again. He urged the members to start right away to put their fields in order so that the bananas might soon look up again, and they could plant various catch crops such as corn and peas even through the bananas where space and necessity will allow. One of the great mistakes of many agriculturists Mr. Arnett said, was that they depended too much on bananas alone. They should plant other crops also as corn. He said that every year we send at least £52,000 to American for corn. In order to prevent this we must plant plenty of corn, produce the best quality possible, and make proper arrangements to keep it. The corn should be so well cured that one bushel will weigh 60lbs. Mr. Arnett described how Naphthalene may with safety be used as a very effective insecticide. A vote of thanks was given to Mr. Arnett for his very fine lecture.

L. M. WWELSH, Secretary.

UPPER ST. JOHN'S (St. Catherine).—A meeting was held on Tuesday evening, 14th September. There were present: Sixteen members, besides the President, Agricultural Instructor, and Secretary. Authorized Persons: Those present gave an account of their work, and no arrests were made by any which shews that Praedial Larceny is on the decrease in these parts. Mr. W. R. Wilks' application for an Authorized Person was considered. The meeting was of opinion that he should get a recommendation from some one who know him before his application can be accepted. A letter from the Mahoe Hill Branch setting forth its views as to what should be done by the Parent Society, so that the small settlers may be assured of

better reward for their labours by uniform prices, was considered. After some amount of discussion it was agreed on: That the members of this Branch are in deep sympathy with the points set out in the resolutions, but cannot see their way to agree with them in their entirety. The Instructor lecture on hill-side trenching was postponed for next meeting. He spoke to all present on the hurricane of the 13th and 14th August last, Loans, Planting of Sweet potatoes, pruning cocoa-trees, and banana. At the close of the Instructor's talk a warm discussion took place on loans.

E. THOS. HAMILTON, Secretary.

ABOVE ROCKS (St. Catherine.)—The regular monthly meeting was held in this Schoolroom on Wednesday, the 8th September, at 6.30. Mr. Hanson was present. There were thirteen members in attendance. The minute books used at present being not satisfactory it is proposed that a suitable one be bought. The Secretary was advised to have the tools gathered from members who have borrowed them. Mr. William Dawkins proposed that a corn mill be bought for the use of the Society. This proposal was seconded to be discussed at the next meeting. It was agreed on that the Authorized Persons be asked to be present at the next meeting. The Secretary was asked to write Messrs. Cauley and McNiel also the Clerk of the Parochial Board regarding the Golden River Road. The Society proposed that the accounts be gone over and stated at the next meeting. Mr. Hnson pointed out the necessity for pruning hurricane damaged plants, especially banana and cocoa, so that the fields may be able to better repair themselves. The singing of the National Anthem brought the meeting to a close.

FRED DENNIE, Secretary.

STURGE TOWN (St. Anns.)—The regular monthly meeting was held at the 11th September, 1915, when 13 members and the Instructor, Mr. Arnett, were present. Mr. A. A. Ives presided. The shears and saw for pruning were shewn and lent to the members. The report on the guinea corn growing was favourable. The Instructor gave a most helpful lecture on corn growing, thus:—(a) Selection of Seeds; (b) caring the plant to get the best crop; (c) cross-bred corn; (d) how to keep corn for months from weevils, etc. Spraying was the next feature of the evening. The demonstration was highly appreciated. The black ants were shewn to be more 'a friend' than an 'an enemy.' 18 more rat tails were brought in—total to date, 111. Authorized persons—All correct.

S. JAMES PALMER, Secretary.

MT. CHARLES (St. Andrew.)—The monthly meeting was held on the 14th September. Mr. R. C. Francis, V.P., presided. The Instructor and eleven members, also several visitors. Mr. H. Rufus was elected a member. Mr. Francis gave an exhaustive report of the Half-Yearly General Meeting of July last, for which he was thanked. A proposal to purchase a corn mill for use of members fell through, as it was not easy to find a centre to suit many members. Members present agreed to combine in groups and purchase mills. Mr. Hanson gave an inspiring address on conditions as they are at present, advising how to deal with injured plants. The following resolution was carried:—"This being one of the districts which sustained greatest damage by the recent hurricane, we, the members of the Mt. Charles Branch would welcome any assistance from the Government in the form of a loan or otherwise for the restoration of our damaged fields." The Instructor was thanked for his address and the meeting adjourned for the second Thursday in October.

W. R. SMELLIE, Secretary.

ST. JOHN'S (St. Catherine.)—A regular meeting was held on the 16th September, at Kitson Town Schoolroom at 7 p.m. Among those present were: Messrs. D. V. Anderson, J. A. Beckford, the Secretary, and Mrs. S. H. Banton. The Secretary informed the meeting that the main object why the members had been summoned was to deal with the correspondence relative to the appointment of "Authorized Persons" which he had been receiving from the Secretary of the Parent Society. The last letter was read. The Secretary was authorized to state that the members

of this Branch do not know of any one by the name mentioned in paragraph I. At any rate they are quite certain that all those that they had nominated are members and no member bears the name of No. 1 as had been stated by the Police *vide* letter No. 2672. A lively discussion on the duties of Authorized Persons took place. Mr. Banton said that it was absolutely necessary for all those nominated and subsequently appointed to give at each meeting a report of work done during the previous month. Mr. Maxwell said he had been going out at nights occasionally and although he had not caught any one still his visits prevented many from taking their neighbour's goods.

S. A. BANTON, Secretary.

RIO MINHO (Clarendon).—The regular monthly meeting was held in the Park Hall Government Schoolroom on Monday, the 20th September, at 5.30 p.m. The following were present: Messrs. J. J. Wright, President, S. A. Schliefer, Instructor, fifteen other members and two visitors. The President mentioned with much feeling the sad death of the Rev. C. H. Baker of Brixton Hill. It was decided to send not less than fifty walking sticks from the Branch to the crippled soldiers; these sticks to be sent to Mr. Barclay of the J.A.S., not later than the 1st October. The Instructor explained the "Cooperative Scheme" launched by the Frankfield Branch, the objects of which are to encourage and insure the better curing of Produce so as to get the best prices available; and obtain also the profits that the "middlemen" make. Both the President and the Secretary spoke in favour of the scheme, and further discussion on the subject was left over for the next meeting, when the rules and regulations will be submitted. During the day, the Instructor visited the Holding of Mr. Jas. S. Cameron and demonstrated "Cocoa Pruning." He was pleased with the Holding, which promises to yield the owner a very good Xmas crop.

JAS. S. CAMERON, Secretary.

PEDRO (St. Anns).—The monthly meeting was held on Monday evening, the 20th September. There were a large turn out of members and visitors, including the Instructor, Mr. Arnett; Mr. Gilbert Brown, M.P.B., and Mr. Archie Brown, of Pedro Farm. Mr. M. A. Harvey presided. The Society is desirous of owning an Anglo-Nubian ram, and is taking steps leading to the possession of one from Claremont. Ernest Mill lead in a debate 'Banana *vs.* Canes.' His arguments in support of banana were so convincing that Mr. Wm. Kidd, who stood for Canes, gave in before venturing very far. Votes showed 14 for Bananas, 7 for Canes. The debaters were confined to the district, and so could not argue as freely as they otherwise would. However, the restriction was necessary. Mr. Thos. Walker, of York, interested the meeting on Yellow Yam cultivation. He is a practical man and his views were shared by all those who have attempted to grow that variety of yams in these districts. Certain conditions make yellow yams the most difficult to cultivate here. The number of banks planted gets less every year. He suggests planting not later than March or April. Don't cover the heads deeply; never let the heads be covered with soil in colder months, as soon as spring starts cut the vines, however, green. Don't encourage springback yams. Mr. Gilbert Brown then exhibited some specimens of corn that he had grown from the Agricultural Society seed-corn and encouraged growers to get that variety. A supply of seeds can now be procured from him. Mr. Arnett supported Mr. Brown's views on corn-growing and expressed it as his opinion that corn-growing would have to be more seriously considered by the peasants of these dry localities in future. There was no necessity for at least £40 per month to be sent out of St. Ann by P.W.D. for corn. At his next visit he hopes to give more hints about corn-growing. Eight new members were enlisted and an agenda for the 18th prox. arranged, including JOURNAL Reading, and debate: Cows *vs.* Horse.

MILFORD A. HARVEY, Secretary.

The Journal

OF THE

Jamaica Agricultural Society.

The more people do the more they can do ; he who does nothing renders himself incapable of doing anything ; while we are executing one work we are preparing ourselves for undertaking another.

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NOVEMBER, 1915.

No. 11.

BOARD OF MANAGEMENT.

The usual monthly Meeting of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 11 North Parade, Kingston, on Thursday, 28th October, 1915, at 11.40 a.m., having been postponed from the usual date, the third Thursday of the month, on account of that day being Trafalgar Day. There were present: His Excellency Sir Wm. H. Manning, K.C.M.G., C.B., (presiding), Sir Jno. Pringle, K.C.M.G. and Hon. P. C. Cork, C.M.G., (Vice-Presidents), Hons. L. J. Bertram, C.M.G., Geo. McGrath, D. Campbell and S. S. Stedman; Messrs. R. Craig, A. W. Douet, A. W. Farquharson, A. C. L. Martin, E. W. Muirhead, H. Q. Levy, Conrad Watson and the Secretary, Jno. Barclay.

Apologies for Absence.—Apologies for absence were submitted from the Hon. J. R. Williams, who was still indisposed; Mr. Adam Roxburgh and Rev. W. T. Graham.

The Minutes of the previous Meeting were read and confirmed.

Statement of Accounts.—Statement of Accounts was submitted.

The following matters arising out of the previous Minutes were considered:—

Motions by Rev. W. T. Graham:—

(a) *Questions.*—"That a place be provided on the Agenda for Questions at an early stage of the Meetings of the Board."

After discussion it was agreed that this should be done, provided that any question which might involve reference, should be given notice of.

(b) *Insurance of Crops.*—"That at the next Meeting of the Board I will ask that a Special Committee of this Board be appointed to provide a proper scheme for the insurance of crops against loss by disaster."

Sir Jno. Pringle said that Mr. Graham who was unavoidably absent, had written him asking him to move the resolution for him. He therefore formally moved the resolution on behalf of Mr. Graham.

Mr. Craig said he would second it for the purpose of discussion.

Sir Jno. Pringle Mr. Cork and Mr. Stedman, spoke on the subject.

The President said that he had seen the correspondence that had passed on the question of hurricane insurance some years ago, as also the Report of the Committee appointed by the Governor to consider the same subject. At that time the Board was not in favour of that scheme for hurricane insurance, and Sir Sydney Olivier in 1909 said that he did not see how the proposals that were put before

the Committee could be made workable. It was from that report, however, that the scheme for Agricultural Loan Banks arose. Those Banks had not been entirely satisfactory, but there were reasons for this—hurricanes and droughts—and most of the Banks were in arrears. What Mr. Stedman had brought forward went outside of hurricane insurance altogether. If they started a scheme for hurricane insurance the Government would require to take the matter in hand and would probably be required to provide money as an Insurance Fund. He thought a Committee should be appointed to consider the whole matter, and he would ask that Committee to consider what effect any scheme proposed might have on the operations of the Agricultural Loan Banks, and whether it would be worth while to launch a scheme on parallel lines to that of the Agricultural Loan Banks.

Sir Jno. Pringle said that the Archbishop who was much interested in the subject had promised that he would give whatever advice he could although he might not be able to be an active member of the Committee. He (Sir John) would like also to mention the name of Mr. A. H. Rowley.

After discussion the following Committee was finally appointed:—

Hon. P. C. Cork (Chairman), Sir Jno. Pringle, His Grace the Archbishop, Hon. S. S. Stedman, Messrs. R. Craig, A. W. Farquharson, A. H. Rowley and the Rev. W. T. Graham.

Mr. Craig said he would only serve on the Committee if the question of hurricane insurance alone was to be considered and no other complicated matters brought in as suggested by Mr. Stedman.

It was agreed that the Committee should consider the question of Insurance of Crops alone.

(c) *Pimento for Experiment.*—The Secretary said that as requested by the Secretary of the West India Committee, London, he had forwarded a bag of Pimento to the War Office for experiment. Mr. Martin had provided the Pimento.

(d) *Swine Fever in St. Elizabeth.*—The Secretary submitted copy of the Report by Dr. Rushie Grey, Government Veterinary Consultant, on his investigations in cases of supposed Swine Fever in St. Elizabeth. He would publish this Report in the JOURNAL as it would be useful. No definite conclusions had been come to as there had not been enough cases left to make the investigation complete. Whenever any epidemic among pigs occurred again, the Government Veterinary Consultant would investigate.

(e) *Authorized Persons of defunct Branches.*—The Secretary read letter from the Attorney General stating that the appointments of "Authorized Persons" held good, after the local Agricultural Society, which nominated the persons referred to, had ceased to exist, but the Inspector General of course could at any time revoke the appointments.

The following letters from the C.S.O. were submitted:—

(a) *District Constables as Produce Buyers.*—The Secretary said that there had been complaint by representatives of Branch Societies at the Half-Yearly General Meeting held in July last, that District Constables held Produce Licenses and sometimes used their authority as Constables to the detriment of other buyers. He had referred the matter to the Government, and the following was the reply:—

No. 11825-13548.

21st September, 1915.

"With reference to your letter No. 1372, dated the 29th June last in which you stated that in the opinion of the general meeting of your society, it was not desirable that district constables should act as produce buyers, I am directed by the Governor

to inform you, for the information of your society that the Inspector General of Police reports, that of the eleven district constables holding licenses as Produce Buyers, and Agents for Produce Buyers, five have resigned from the District Constables Force, and the others have retired from the produce business."

(Sgd.) G. M. WORTLEY,
Actg. Asst. Colonial Secretary.

He was instructed to reply that the recommendation should also be prospective, that no man holding a Produce License should be a District Constable.

(b) *Special Train for General Meeting.*—The Secretary said that the following letter referred to a proposal from Mr. Cradwick, that a special train might be run from Port Antonio on the day of the General Meeting of the Society, as at the last Meeting a large number of the delegates had come from St. Mary and Portland, and owing to the train being late, missed part of the Meeting. He read the C.S.O. letter as follows:—

No. 12646-14495.

11th October, 1915.

"With reference to the correspondence ending with your letter, dated No. 95, dated 3rd ultimo, I am directed by the Governor to state for the information of the Jamaica Agricultural Society that from enquiry it is found that the estimated cost of a special train from Port Antonio to Kingston on the day fixed for the half yearly general meetings of the society would be considerable and would not be covered by the fares and that at the present juncture the proposal cannot be entertained as the strictest economy is necessary.

(Sgd.) ROBT. JOHNSTONE,
Actg. Colonial Secretary.

(c) *Double-dialled Spring Balances.*—

No. 12675-13743.

12th October, 1915.

"With reference to the request which was made by a delegate at the last half yearly meeting of the Jamaica Agricultural Society, that legislation should be provided for the use of double dialled spring balances by shopkeepers in the Island, I am directed by the Governor to inform you that steps are being taken to have a Bill prepared for consideration with a view to giving effect to the proposal.

"The Bill will not however, be dealt with until the first non-war session of the Legislative Council."

(Sgd.) ROBT. JOHNSTONE,
Actg. Colonial Secretary

The Secretary explained that at the last Half-Yearly General Meeting held in July it has been reported that it was a common practice in shops to have the scales fixed up so that the weights could not be seen by the customer, and it was suggested that it should be made compulsory that double-faced scales be used.

(d) *Government Veterinary Consultant.*—

No. 12290-14197.

1st October, 1915.

"I am directed to inform you that the Governor being satisfied that Anthrax exists in the parish of St. Elizabeth, has, under Section 3 of Law 1 of 1909 as amended by Law 21 of 1910, appointed the Director of Agriculture and Dr. G. O. Rushie Grey, Veterinary Consultant to be Commissioners for that Parish for the purposes of the Law.

2. The necessary Order will be published in the *Jamaica Gazette* in due course."

(Sgd.) ROBT. JOHNSTONE,
Actg. Colonial Secretary.

(e) *Free Rail on Bundles of Sweet Potato Slips.*—

No. 11390-13169.

11th September, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter, No. 104, dated the 8th instant, and to inform you in reply that His Excellency approves of bundles of Sweet Potato Slips being conveyed by the Railway free of freight from the Prison Farm, Spanish Town, to the several stations in St. Mary for distribution in the storm damaged districts of that Parish."

(Sgd.) ROBT. JOHNSTONE,
Actg. Colonial Secretary.

The Secretary stated that after any storm which destroyed bananas in St. Mary there was always a rush to plant other foodstuffs and Sweet Potatoes were largely planted. Supplies of plants were wanted and he got these from the Prison Farm.

(f) *Extension of Time for Loans.*—

No. 12487-14292.

7th October, 1915.

"I am directed by the Governor to acknowledge the receipt of your letter, No. 124, dated the 29th ult., submitting a copy of a resolution passed by the Central St. Mary Branch Agricultural Society asking that further loans may be made to members of the Society to enable them to restore their cultivations which were damaged by the recent hurricane.

2. I am in reply to ask that you will be so good as to inform this Branch Society of the terms of the resolution passed by the Legislative Council on the 23rd ultimo (a copy of which is forwarded herewith) approving of further advances, not exceeding two thousand five hundred pounds in total amount, being made on certain conditions to Agricultural Loan Societies under Law 6 of 1912, the Agricultural Loan Societies Law, 1912, and that you will intimate to the Society that the Government is not authorized to go beyond the terms of that resolution."

(Sgd.) ROBT. JOHNSTONE,
Actg. Colonial Secretary.

The Secretary said that resolutions had come from several Branch Societies in St. Mary asking that time be given for payment of the loans got from local Loan Banks. He had forwarded these to the Government.

EXTRACT OF RESOLUTION FROM MINUTES OF THE LEGISLATIVE COUNCIL OF THE
23RD DAY OF SEPTEMBER, 1915.

The Acting Colonial Secretary moved:—

This Council approves of further advances, not exceeding £2,500 in total amount, being made to Agricultural Loan Societies, under the provisions of the Agricultural Loan Societies Law, 1912, Law 6 of 1912, to meet the applications received for further assistance owing to the hurricane of 12th-13th August, 1915, and considered and approved of the Agricultural Loan Societies Board, the loans out of £2,500 to members of the Societies to be made on the following conditions, viz.:—That they should be made only to borrowers under Law 36 of 1912 who had paid by 31st July, 1915, at least 10 of the 15 monthly instalments then due on account of their loans and should be not more than 50 per cent of their total repayments.

Seconded by Mr. Simmonds and agreed to.

I certify the above to be a true extract.

(Sgd.) PHILIP STERN,
Clerk Legislative Council.

The Board decided that all Branch Societies should be notified that all questions from Branches on Loan Bank matters should be communicated direct to the Colonial Secretary's Office and not through the Secretary.

War Gifts and Contingent.—The Secretary reported that he was still making regular shipments every fortnight; as Oranges and Grapefruit fit to ship were now plentiful he could send far larger consignments, but the Shipping Company could only give space for between 100 and 200 boxes.

The Secretary read letter of acknowledgment from the C.S.O. of Gifts forwarded to the Crown Agents. Also the following letter from the C.S.O.:—

No. 11928-S.S. Circular, 21.8.15.

23rd September, 1915.

"I am directed by the Governor to inform you that the Secretary of State for the Colonies has intimated to His Excellency that it is the intention of His Majesty's Government to publish at the conclusion of the War a Blue Book containing a complete list of all the contributions from the Oversea Dominions, both in men, money, and kind, including contributions for relief in Belgium or for the benefit of the other Allied Powers, and has requested that particulars in regard to gifts from Jamaica may be prepared and kept up to date and ready for transmission to him when required for the purposes of the Blue Book.

2. In order that a complete list of contributions may be compiled, His Excellency would be obliged if you would be so good as to furnish particulars of any contributions that may have already been made or that may be made in the future through your Society."

(Sgd.) G. M. WORTLEY,
Actg. Asst. Colonial Secretary.

The Secretary submitted letter from Mrs. Bourne as follows:—

Womens' (Provisional) Contingent Committee,
King's House, October 25th, 1915.

"Will you kindly submit the enclosed letter to the next Monthly Meeting of your Society's Committee of Management. As the Society meets only twice a year, I venture to hope that the Committee may feel able to nominate a lady now, without waiting for the Annual Meeting. The matter is not likely to give rise to any difference of opinion."

(Sgd.) K. H. BOURNE, Hon. Sec.

Comforts for the Contingent.—

There seems to be a general feeling that the time has come for the women of Jamaica to be enabled to shew in a practical way their interest in the Jamaican Contingent. Accordingly we have been constituted a little committee, with the object of getting together a larger, permanent ladies' committee which would aim at supplying the Contingent with comforts and extra garments as need may arise. We propose to ask each of the following to nominate a representative on this ladies committee: Every Parochial Board, the Kingston City Council, the Agricultural Society, the Ministers' Fraternal Association, and possibly other bodies. And a few members will be co-opted on account of their personal qualifications. This committee will, it is hoped, co-operate with those ladies and committees who may wish to help the Contingent. While carefully avoiding interference with the admirable work already being done for Belgians, hospitals, etc.

The Appeal is now made.—

But it will take some time to get this committee started and as it is hoped that the Contingent will soon be leaving, we venture now to make the following appeal. If any one or committees have made woollen cardigans will they forward them to us? And will others send us money to buy the rest? We propose to ask the West Indian Contingent Committee in England to purchase cardigans for us, to be given on arrival to those members of the Contingent for whom we have been unable to provide on starting. Shirts and socks as well as outer clothing are, as we know, provided by the military authorities.

Any knitters willing to make cardigans for later drafts are asked to send us money for needles and wool, and they will be supplied by degrees as we obtain materials. And we shall welcome donations, small as well as large, to our general fund. His Excellency the Governor has kindly given permission for all correspondence to be addressed to us at King's House, and we shall be greatly obliged if all who may write to us will kindly bear this in mind.

We are, etc.,
MARY H. BLACKDEN, Chairman.
DOROTHY TREFUSIS, Hon. Treas.
KATHARINE H. BOURNE, Hon. Sec.

St. Andrew,
October 22, 1915.

It was agreed to ask Mrs. A. W. Douet to be the representative of the Society on this Committee.

Sugar and Hides.—Letter from Hon. H. Cork, was submitted as follows:—

Parkmount, Port Antonio,
4th October, 1915.

"Gentlemen—I beg to bring under the notice of your Board the fact that although leather has increased in price 100 per cent., the penkeepers and local butchers are only getting 38/ to 42/ per hundred pounds for green hides. I think your Society should circulate a leaflet showing a method whereby green hides could be partially cured and could be kept for shipment.

Settlers' Sugar.—"A lot of the settlers' sugar is not properly tempered. The branch societies should be encouraged to keep a central supply of good temper lime which should be retailed amongst the members. A growing evil in this article is the placing of largestones in some tins and in others quite two or three inches of clay is placed in the bottom of the tins before the sugar is put in. I think this should be made an indictable offence.

(Sgd.) HENRY CORK.

The Secretary said that there was some matter in the current number of the JOURNAL as regards the matter of Wet Sugar.

The letter was referred to the Staple and Minor Products Committee.

Catapults.—The Secretary said that he had received complaints from Branch Societies about the use of catapults in their districts. He had written the Inspector General on the subject, and the following was his reply:—

No. 785-6138/15.

16th October, 1915.

"I have to acknowledge the receipt of your letter No. 139, dated 4th instant, and to inform you that the Police were instructed some time ago to use every effort to put a stop to the practice of boys using Catapults to kill birds, and I have again directed their attention to the matter."

(Sgd.) A. E. KERSHAW, Lt.-Col.,
Inspector General of Police.

Letter from Mr. Spooner, Antigua.—The Secretary submitted letter from Mr. Spooner, Antigua, forwarding copy of the Annual Report of the Antigua Onion Growers Association for 1914-15. This appeared to be a very successful Association and the Report would be useful to the Special Committee on Co-Operation, to whom he asked that it might be referred.—Agreed to.

Cassareep.—Samples of Cassareep and Cassareep Sauce from Mrs. Fray, Spring Plain, Milk River, were submitted. Mrs. Fray wrote that the sample of Cassareep procured from Demerara had been useful to her.

The Secretary said he would refer to this matter in the JOURNAL.

Application for Affiliation.—Applications for affiliation from (a) Mt. Moreland (St. Catherine), (b) Mt. Hermon (Portland), were submitted together with recommendation from the Instructors Committee for their affiliation. Mt. Moreland was a new district which had not yet had the benefit of the services of the Agricultural Instructor as there had been no Branch Society within a large radius. Mt. Hermon was a new Branch but was taking the place of an old Branch a few miles away which had become defunct. Mt. Hermon was a better centre.

It was agreed to affiliate both local Societies.

Instructors.—The Instructors Reports and Itineraries for September were submitted and referred as usual to the Instructors Committee.

New Members.—The following new Members were elected:—

Rev. C. R. S. Pike	Black River.
Sebastian Spear,	Le Refineria, Kinatitlan, Mexico.
Senor J. A. Williams,	El Callao, Venezuela, S.A.
Capt. S. D. List,	United Fruit Co., Port Antonio.
G. Phillpotts Brown,	Montego Bay.
A. H. Rowley,	Kingston.

The Meeting adjourned until Thursday, 18th November, 1915, at 11.40 a.m.

THE LIME GROWING INDUSTRY.

Jamaica has exported an average value of only £3,900 of Lime Juice for the 4 years proceeding 1914 (1910-1913.) The quantity has not been increasing. The Island of Dominica exported in the financial year 1913-1914 value £142,662, as much as Jamaica exports in coffee, and somewhat more than we export of cocoa and coconuts. Little Montserrat exported value £5,977. Dominica is what was here would call a wet place; it has of course districts drier than others but on the whole its rainfall is more regularly distributed than ours. It is a much smaller place, of course. The point that we are drawing attention to, because it has always seemed so curiously different from what prevails here, is that limes there are grown in very seasonable districts, that is, with good, even to very heavy rainfalls, while here lime growing is nearly all confined to some of the driest districts along the sea board. There limes are grown in regular plantations, cultivated and sometimes highly cultivated; here we cannot recollect a cultivated plantation of limes being in existence; the late Dr. Neish started one but it was not kept up. The lime trees here are invariably grown, like most of our orange trees (although we have cultivated groves of oranges and grapefruits too)—through grass pastures where they take pot luck. But they are decidedly hardy trees—must be, because they have not been planted but grew up of themselves; grew among grass, often tall guinea grass; were nibbled at by stock; are in districts subject to heavy sea breezes and long and severe droughts. Yet the trees bear, often very well, and are of substantial value. Limes here are never grown commercially where the orange thrives best, inland and on the hills; yet they do grow well there. Altogether the difference in practice between Dominica and here is very curious.

Whenever a War breaks out the price of lime juice rises, that is not to say that there is not a fair demand and price without war, but there is always an increased demand during a war. Temperance legislation in the United Kingdom, if it would hit our rum trade hard, ought if well directed, benefit the Lime trade, and the Ginger trade, and enhance the prospects of these industries. We say, well directed, because care should be taken that temperance drinks are *bona fide* healthy drinks—not concoctions of chemicals “made in Germany.” At the present time for instance, practically no Ginger Ale in the United Kingdom has any ginger in it: essence of Capsicum (pepper) is used. Lemonades have no lemons or lime juice in them; kola has no kola in it, and so on. A Pure Food Law which would secure that all labels should describe the contents of a bottle (or other receptacle) accurately, would do.

The following notes are adapted from a special article on the subject of “The Lime and the Lemon as sources of citric acid and Essential Oils,” published in the Bulletin of the Imperial Institute, London, and which is full of useful information:—

During recent years, in tropical agriculture, lime cultivation has been one of the minor booms. Prices have ruled extraordinarily high for the various products of this citrus plant, and at the present time large areas of land are being placed under cultivation not only in the West Indies but also in other parts of the tropics.

Economic Status of the Industry.—In magnitude, in volume of trade, the lime-growing industry at present is very small in comparison with industries like rubber or sugar production. Even the

world's trade in citrus products is insignificant in comparison with these. But in two respects, at least, lime cultivation has something in common with those of rubber and sugar. It produces commodities of Imperial origin, important for human consumption and essential for manufacturers in Great Britain. Further resemblance lies in the fact that all these are subject to direct competition. Colonial rubber has to compete with Brazilian; colonial sugar has a rival in beet sugar; colonial lime juice, oils, and fruits have to compete with the products of the Sicilian lemon.

It will be well, however, at the outset to dispel any misapprehensions on this latter point by saying that for the present there are no indications that the supply of lime products will exceed the demand. As a matter of fact lime products, generally speaking, serve industrial purposes different from those of the lemon, but the fact remains that Sicily to a large extent regulates the market price for citric acid, which is the essential constituent of lime juice and of calcium citrate. Sicily, also, because of her large production, influences the prices for essential oils of the citrus group.

It occurred to the writer, in view of the increasing area under limes and the attention which lime growers give to Sicilian affairs, that it would be interesting to contrast the lemon and the lime as sources of citrus products, to compare their respective yields, and their positions in the world's markets. At the same time it was thought desirable to give in outline the methods practised in cultivating limes in the West Indies for the benefit of intending capitalists, and to indicate how the market opinion of lime products compares with that of lemon products. The lemon is not, like the lime, dealt with from the agricultural standpoint, for the reason that the area under lemons—except perhaps in the United States of America—cannot extend, for the plant requires very special conditions of soil and climate, and the industry in Sicily is fully established. Moreover the lime crop appears to be better suited to tropical conditions than the lemon. As regards exports, then, the future development of the citrus industry in prepared products depends almost entirely upon the extension of lime cultivation, which is especially well adapted to the West Indies and Central America.

Extent of Production of Citrus Products.

The commodities dealt with principally in these notes are raw and concentrated lime juice, citrate of lime, and the essential oils. Some idea of the relative importance of lemon and lime products (excluding in the case of lemons the fresh fruit trade) can be obtained from the following figures showing the exports of lime products from the British West Indian Colonies during 1913-14:

	£
Dominica	142,662
Montserrat	5,977
Jamaica (average last four years)	4,179
St. Lucia	3,108
British Guiana	1,530
Total	<u>£157,456</u>

These figures include the fresh limes exported chiefly to New York, worth about £40,000. It may be added that lime products

worth some thousands of pounds are also exported from Porto Rico, Mexico, add other foreign countries of Central America.

The value of citrus products prepared from the lemon exported from Sicily in 1908, which may be taken as an average year, amounted to about £840,650, as follows:

Citrate of lime	..	..	2,678,489
Citrus essential oils	..	..	1,380,455
Raw juice	..	..	121,098
Concentrated juice	..	..	23,208
Total	..	...	\$4,203,650

As a general rule, the value of the fresh lemons exported equals the combined value of the so-called by-products, excluding peel. This shows the magnitude of the citrus trade of Sicily. During 1912-13, the fresh fruit trade increased greatly owing to the failure of the Californian crop, which partly meets the American demand. Hence the amount of by-products that could be made in Sicily was relatively small, and consequently prices ruled high for the West Indian products. During 1912-13 the quantity of citrate of lime produced by Sicily was only 3,445 metric tons and of concentrated juice only 22,042 Imperial gallons—considerably less than the mean annual production or consumption during the last five years.

It will now be more or less evident that Sicily, being the chief source of citrus products, must to a large extent regulate the market. It may be remembered, however, that the total or combined exports of lemons and by-products from Sicily has not increased for years and is not likely to grow appreciably larger. On the other hand the export of lime products has increased rapidly during the past few years and is certain to increase further, thereby strengthening the position of limes on the market.

Composition of the Two Fruits.

The *Lancet* for March 28, 1908, published the results of analyses of two samples of limes and lemons which showed the lime in all important respects to be the richer fruit. The average amount of juice expressed from a lemon was 37.5 per cent. of its weight, whereas the lime gave 59.0 per cent. Moreover the lime gives more citric acid but less sugar. The citric acid content of the lemon was shewn to be 4.57 and that of the lime 5.60 grams.

Taking the average of the figures from another experiment, we get the following:

		Juice expressed.	Citric acid in juice.
		<i>Per cent.</i>	<i>Grams per 100 c.c.</i>
Limes	..	51.9	7.40
Lemons	..	37.1	7.24

These results show, even with limes not of the first grade, that the lime undoubtedly contains a higher percentage of juice and of citric acid than the lemon, but the difference is not quite as great as the *Lancet* figures seem to show. Dr. Francis Watts, C.M.G., in the West Indies, during 1905 tested limes and lemons grown in Dominica, and as regard the acid content obtained the following results:

LIMES.		
	Spineless.	Ordinary.
Percentage of juice	51.3	50.8
Citric acid, grams per 100 c.c. ..	11.70	11.15
Citric acid, oz. per gallon ..	15.71	14.18

LEMONS.		
	Italian.	Villa France.
Citric acid, grams per 100 c.c. ..	11.17	11.37
Citric acid, oz. per gallon ..	13.28	15.39

These values relatively are more in accord with the writer's figures, though absolutely the acid content is much higher. It is clear that in the case of the relative composition of citrus fruits great care must be exercised to secure examples which are in a comparable condition. There is undoubtedly a loss in citric acid on keeping.

At all events, the writer's figures are of interest as an indication of the composition of limes and lemons actually being sold to the public during the winter months in London.

It would appear that the lemon contains a larger percentage of essential oils than the lime, possibly owing to the thickness of the skin. But the lime is richer in phosphoric acid and possesses special anti-scorbutic properties—both matters of importance from a dietetic point of view.

Method of Cultivating Limes.

Selection of Land.—In considering the cultivation of limes, it will be convenient to sketch the establishment and general management of an estate in Dominica or St. Lucia, two of the principal citrus islands of the Lesser Antilles.

Flat or gently undulating lands should be chosen if possible, in a locality which is well sheltered and situated from sea-level up to 800 ft. elevation, and possessing a rainfall varying from 80 to 160 in. per annum. If the rainfall is well distributed, 60 in. may suffice. In the West Indies, where limes thrive best, the average temperature is about 80° F. in the shade.

Preparation of Land and Planting.—If necessary, the land is cleared of forest in the usual way, and after planting the seedlings (generally 15 by 15 ft.) the weeds are kept down by cutlassing around the young plants. Before planting, however, adequate provision has to be made for roads, drainage, and windbreaks. Drainage depends upon local conditions of soil and climate, but often it is not apparent that drainage is necessary until the estate is being worked. Care should be taken to plant the trees in straight lines; otherwise, if drainage operations have to be started, grave damage may be done to the groves. Windbreaks are generally essential from the beginning.

Nursery Work.—Seedlings for planting out have to be raised in special seed-beds in nurseries. Up to the present most of this work in the West Indies has been undertaken by the local Agricultural Departments, which have supplied the estates with many thousands annually. Now the estates are beginning to raise their own. There are no special difficulties attending this work, provided that a good water supply is secured. Success then depends largely on practical experience.

After-cultivation and Manuring.—Assuming that the estate is now planted up, it remains to consider next what after-cultivation

is necessary. The point to remember in this connection is that the root-system of the lime tree is surface feeding. Hence tillage has to be very cautiously performed, and it is generally disadvantageous in the long run to plant catch crops. Very little pruning is required, but attention must be paid to cases of injury by wind and to replacing those trees that die.

As regards manuring, the first essential is to maintain the soil humus. This is done by the careful use of green dressings and by the application of mulch, green manure, and possibly artificial manures. Very little is yet known concerning the manuring of limes. Experiments have recently been started in this direction at Dominica, and in a few years' time we shall be better able to give advice. As a matter of fact, even in a more general way, there is not a great deal known about the requirements of the lime plant. It has been rather neglected, because it was not until quite recently that this plant became prominent as a tropical cultivation. More attention, experimentally, has been given to its products, like the composition of the fruits, lime juice, and oils, than to the plant itself. As already stated, this neglect is being remedied.

Time of Maturity and Yields.—The lime crop takes about five years to come into bearing. Under favourable conditions the trees may yield a few fruits in the third year, but it is nearer eight or ten years before the estate can be regarded as yielding its maximum crop. A lime tree continues to yield for at least forty years after first beginning to bear.

In Dominica and St. Lucia the main crop is gathered from June or July to November or December. Four or six months is required for the development of the fruit from the flowering stage.

The yield per acre of an established lime plantation varies considerably, but a good average is 150 barrels of fruit. The weight of a barrel ($4\frac{1}{2}$ cubic-foot contents) of limes is about 160 lb. Hence an acre of good land may be regarded as yielding 24,000 lb. of fruit.

Harvesting.—The gathering of the crop depends upon the way it is to be disposed of. Fresh limes for export as such are picked from the trees in a green condition; fruit from which manufactured products are to be made are allowed to ripen on the tree and fall to the ground.

Production of Lime Products in the West Indies.

Raw Lime Juice.—The greater portion of the crop is disposed of as concentrated and raw lime juice. A barrel of limes gives about $7\frac{1}{2}$ gallons of juice. There is generally a considerable loss owing to the imperfect working of the mill, which may reach 2 gallons of juice per barrel. Fresh lime juice contains $12\frac{1}{2}$ to 14 oz. of citric acid per gallon. In preparing the lime juice the strictest attention must be paid to cleanliness and to proper straining.

Concentrated Lime Juice.—In order to reduce freight charges lime juice is generally concentrated to contain 100 oz. of citric acid per gallon, but the degree varies according to market prices. During the process of concentration there is an unavoidable loss of acid due to burning. In the case of open tache concentration, such as is generally employed at present, this amounts to over 10 per cent, but with the steam coil vat the loss is nearer 2 per cent.

Citrate of Lime.—Under certain circumstances, it is found advisable to dispose of the lime juice as calcium citrate or citrate of lime. Its preparation is simple. The raw juice is run into a vat and heated to boiling point, and is then neutralised with pure slaked lime. The disadvantages attendant on making this product on a small scale are the washing and drying arrangements which are necessary.

It is generally accepted that 76 barrels of fruit are required to make 6 cwt. of citrate of lime, or 1 gallon of juice is equivalent to 1.18 lb. of citrate of lime.

Essential Oils.—Before the fruit is crushed with a view to manufacturing the above products it is usually "ecuelled" or hand-pressed to extract the essential oil in the skin. The quantity of oil obtained by this method of pressing the fruit over a spiked surface varies with the skill of the worker, but in practice $1\frac{3}{4}$ to 2 oz. per barrel of fruit may be taken as an average figure, though the yield is often considerably higher.

Distilled oil of limes is an entirely different substance. This oil is distilled from the juice during concentration, and although the yield is higher than in the case of the hand-pressed product, being 4 lb. for every 100 gallons of juice, its market price is much less than that of "hand-pressed" oil.

"Hand pressed" oil usually fetches from 5s. to 6s. per lb.; distilled from 1s. 2d. to 1s. 6d. per lb.

Fresh Limes.—During the last ten years a very considerable trade in fresh limes has developed between Dominica and New York. Latterly St. Lucia and other West Indian colonies have participated in this trade. Great care must be exercised in the matter of preparing the fruit for export. The green fruit must be kept in a packing house for a few days previous to being shipped in order to allow the fruit to quail—that is, lose excess of moisture in the skins. The fruit must be carefully graded, wrapped in paper, and packed in ventilated barrels. Careful handling in all operations is an essential feature.

Whether, in the future, as the area under limes grows larger, the fresh fruit trade will increase greatly, is difficult to foresee. In the United States the lime appears to be replacing the lemon for certain purposes. In the case of the United Kingdom, the trade has never assumed any great importance for several reasons. In the first place, the voyage to England is nearly twice as long as to New York, which puts difficulties in the way of transporting perishable produce. Secondly, the British taste is conservative. The public is familiar with the lemon, and is not generally inclined to discard it in favour of the lime, even if this fruit were regularly available. As a matter of fact, the fresh lime can only be available in any quantity during the latter half of the year, whilst the lemon is always to be had. Furthermore, the fresh lime is essentially an article for immediate sale. It does not keep as well as the lemon, and the retail salesmen do not view it with favour from a business point of view. In New York the consumption during the hot months is rapid and continuous; the fruit can therefore be bought with a certainty of profitable sale.

Of course the peculiar feature of the fresh lime trade is its elasticity or accommodating nature. If prices range beyond a certain point it pays to ship; if they do not, the fruit can be held back for manufacturing purposes. The trade with New York is run on this

principle, and it is worthy of note that growers are not absolutely dependent on this outlet for their produce.

In the case of the United Kingdom it would seem for the present quite unnecessary to go to any expense with a view to pushing the fresh lime trade, as it is likely that more profit is to be made there out of concentrated juice and the essential oils—two products which do not really now come into direct competition with Sicily because because that country produces citrate and essential oils which have special uses.

Nevertheless, if a demand for limes could be created they would both chemically and dietetically withstand competition with the lemon.

(To be Continued.)

THE DWARF OR CHINA BANANAS.

In the JOURNAL for October, 1914, page 434, we published a paragraph stating that in view of storms which come often and destroy our supplies of the common or Martinique banana, we should grow a patch of the Dwarf or China banana (*Musa Cavendishii*) which are not readily affected by wind and would always furnish at least a home supply. We pointed out that the Dwarf banana grew on poorer soils than the tall bananas, could be planted much closer—8 x 8, and so might be made very profitable.

When the Elders & Fyffes steamers first started, we asked Mr. Stockley of Elders & Fyffes, Ltd., who was here at the time, whether his Company would not take these Dwarf bananas as they were then the common banana sold in the United Kingdom, imported from the Canary Islands. They still are the favourites. He stated he would take them if they carried all right. Before that Company started, the Agricultural Society had carried through several experiments in shipping bananas to England by the Royal Mail steamers without any cold storage, the bunches being shipped bare or put up in various ways. It was found that the Dwarf banana carried all right except that when the bunches came to be handled on the other side, when ripe, the fingers readily fell off the hands. At first the Elders & Fyffes Co. had even trouble in carrying the common bananas well, and a good many losses occurred. Then when their steamers were loaded by the United Fruit Co. here, who had more experience in handling fruit, the fruit carried very well. We do not know if there have been any other experiments in shipping bunches of this Dwarf banana of late years; we think not. Since those days shipping facilities for fruit in the new steamers are much improved, and of course probably a good deal of additional knowledge in handling fruit here has been obtained by experience. After the hurricane of 1903, it was again suggested that the Dwarf bananas should be grown and the subject was brought before this Society, but no experiments were carried through. We suggest now, however, that it might be worth while to send a few bunches of Dwarf bananas by the Elders & Fyffes steamers as a trial, to England. These bananas are not liked in the United States but they are liked in England. If they carried fairly well, and kept well, and if the Fruit Companies would take them for the British market, planters could always grow a proportion of these

bananas, and a proportion could always be shipped and given the best space on the steamers. We should not then suffer quite so much from the blowing down of our bananas.

* * * * *

The above was in print before we received the following letter from Captain List, Manager of the United Fruit Company here with whom we had communicated on the subject:—

"With further reference to your letter of the 3rd inst., No. 2591, which letter I referred to our Head Office in Boston, our experience is that the China bananas have to be carried in a different temperature to the ordinary bananas, and for that reason we do not care to handle them. I am sorry, therefore, that I cannot hold out any encouragement to you or other parties interested in the planting of China bananas for exportation."

CHINA BANANAS.

I cut four bunches yesterday fit for American market:—

9 hand equal 47 lbs. weight

9 hand equal 54 lbs. weight

10 hand equal 57 lbs. weight

10 hand equal 58 lbs. weight

My experience.—

1. A 9 hand China has about 10% more fingers than a Martinique 9 hand and weighs about 6% less.

2. The same cultivation and soil that would produce a 9 hand Martinique would produce a 10 hand China.

3. The same area that would produce 200-50 lb. Martinique will produce 250-50 lb. chinas.

4. The China bananas take about 5 weeks less to come in than Martinique bananas.

5. China bananas do not go down much in a breeze. In the storm of November, 1912, I lost 99% of my fruited Martinique and about 5% of my fruited China.

6. Apart from wind, China bananas go down much more readily than Martinique and require "cotching."

7. China bananas do not lend themselves well to ratooning. They throw out a multitude of suckers, which it is difficult to keep down.

F. G. SHARP.

Trout Hall, Chapelton.

As we knew, Mr. Sharp had some acres of China Bananas (which he had grown purposely for his banana fig business), we asked him to furnish some particulars for publication, in comparison with the ordinary Martinique or Jamaica bananas. No. 7 rather surprises us, for our experience (in an entirely different climate higher in the mountains) was that this variety of bananas did not throw out such a multitude of suckers as the Martinique bananas under the same conditions did.—ED.

COFFEE.

An article appears on page 287 of the "Agricultural News" for August, 28th, 1915, which describes how a pest of Arabian Coffee has now accommodated itself to Liberian Coffee as a host. The article points out that this is a matter of "prodigious practical importance," and I think the attention of all planters as well as Instructors and others interested in practical and scientific agriculture in Jamaica should

be drawn to it. We have it on record in Jamaica already that the Bonnygate disease of bananas can accommodate itself on Cocoa as a host, thus affording a parallel instance although of course not strictly the same. The practical importance of the occurrence to my mind lies in the fact that it is absolutely necessary when dealing with Plant Diseases that they should be exterminated as thoroughly as possible. It has long been accepted as an axiom by farmers that a plant disease attacking one species or genus of plants was not dangerous to another species or genus and the eradication of disease has often been done in a very slipshod manner owing to the belief in this doctrine. And it behoves all and sundry in dealing with Plant Diseases to impress as strongly as possible on owners of diseased plants, or animals for the matter of that, that it is not possible to too thoroughly destroy both the diseased plants or animals and with them every germ or spore of disease.

W. CRADWICK.

Highgate.

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INSECT PESTS ON TOBACCO.

The Government Entomologist, Mr. A. H. Ritchie, addressed a special meeting of the May Pen Branch Agricultural Society on the above subject on October 13, and we herewith publish a summary of the address:—

Before commencing the talk on the Insect Pests of Tobacco, Mr. Ritchie, following on an able paper by Mr. L. H. Palomino on the subject of tobacco growing, stated that he was personally interested in one line of Tobacco growing, viz.: in the production of standard varieties of Tobacco by careful selection and plant breeding, thereby obtaining an even quality of leaf for wrapper or filler purposes with any desired properties to suit the market being catered for. A field of uneven tobacco, where several types or varieties were present, would ripen unevenly, require varying times for curing and reduce the grade as a whole. Self pollination or inbreeding, that is the fertilising of the female element by the male element of the same plant, has been shown to be injurious to certain crops, e.g., corn. The effect of inbreeding in stock was also well known, resulting in decreased vigour. In tobacco, however, it was not so as Charles Darwin had shown, therefore after selecting the plants which showed certain improvements or were of the most approved type, they should bag the blossoms buds, before opening, with paper bags, the bags being perforated by a sewing machine needle somewhat to permit of ventilation. By so doing the seed would reproduce true to parental type, but if the blossom were unprotected, cross pollination by insects would result and a mixture of types, many possibly undesirable, be obtained the following year. By such methods of careful selection and protection of seed, uniformity of plant type is achieved with a resultant increase of yield and improvement in quality without any increase in the cost of production: this might well be said of other crops as well as of tobacco.

The various pests affecting tobacco were then dealt with in succession.

Cutworms.—These are the caterpillar stage of night flying moths usually of dullish brown tint, which deposit their eggs on vegetation. Land under weed or dense vegetation is preferred for this purpose. The young on hatching pass the day in the soil and confine their feeding to the hours of dusk and night. The pupal or resting stage when the caterpillar metamorphoses into the moth, is passed in the soil. Land should be thoroughly worked up well in advance of the crop, the theory being that vegetation would be reduced to a minimum thereby and a certain number of the worms concerned would be starved out. Land under cultivation is not so attractive for cutworm moths laying. Land standing in dense weed from one spring until fall when land is again required is not to be approved of. The condition of the fields was such as to provide most attraction for the moths to lay, egg laying went on at intervals from April till August, the cutworms were present, undisturbed in the weedy land only owing to the abundance of vegetation their work was not apparent and they could not expect it otherwise than that cutworms might be severe. Prevailing weather would condition the degree of severity. The theory of cultivation of course is that pupae and caterpillars are disturbed, mechanically destroyed or exposed to enemies, moreover the covering of vegetation is not so dense and so less attractive for egg laying. On several plantations in recent years infestation has been very great, replanting enormous acreages a second and third time being necessary, this means increased planting expenses uneven maturing, uneven housing and the putting back of the procuring of a stand or of the obtaining of the crop into less propitious seasons. The loss must be considerable. Poison baits were advisable sown broadcast over the seed bed or field to be planted. As the worms feed by night, the bait would be in a moist attractive form if put out late in the afternoon.

Kansas Formula.—

Bran	20 lbs.
Paris Green	1 lb.
Molasses	2 qts.
Oranges or lemons	3
Water	3½ gallons.

In preparing the mash, mix the bran and paris green thoroughly while still dry, in a tub or on a concrete floor. Squeeze the juice of the oranges or lemons into the water and chop the remaining pulp and peel into fine bits and add them to the water. Dissolve the molasses in the water and wet the bran and poison with the mixture stirring at the same time so as to dampen the mash thoroughly.

Canadian Formula.—

Bran	50 lbs.
Sugar	½ lb.
Paris Green	½ lb.
Water	2 gallons.

Mix the bran and Paris Green together and moisten with the sweetened water.

There would appear to be a peculiar attraction to insects in a bait containing fruit juice and the success of the Kansas formula has been quite phenomenal where tried.

In certain quarters there is an expressed fear of using these baits broadcast. The quantities mentioned for the Kansas formula are sufficient to treat from 3 to 5 acres—the strewing is therefore very

thinly done. In Kansas, on Grasshopper Day, when infested sections of the state join in a yearly campaign against the grasshoppers (or as popularly known in the recent central and South American outbreaks as "locusts") upwards of two million pounds of bait are distributed by the farmers at state and county expense, and if wild life were endangered game wardens would long since have reported the matter. Our Canadian friends use the bait with astonishing results against the grasshoppers, the Dominion Entomologist reporting results in Quebec province of 900—1,200 dead locusts per square yard.

Equally good results were claimed against army worms and cutworms by those who had tried it out. For climbing cut worms on young corn a little of the bait dropped into the curl of the plant would give results. Wherever cutworms are concerned on field or garden crops poison bait is unhesitatingly to be recommended.

Tobacco Horn Worms.—At present there seems to be a popular misconception prevalent that white or yellow dayflying butterflies noticed in the fields are responsible for this worm pest. This is not so nor has the moon as is believed in certain tobacco growing countries anything to do with abundance. The moth concerned is one having the wings of a pepper and salt mixture of blacks, whites and greys with several yellow markings on the body. They are large and heavily built and fly by night. The eggs resembling small pearls are deposited usually singly on the under side of leaves and the worm is of a greenish coloration with distinct whitish or heliotrope oblique bands. The name horn worm refers to a protuberance or stump at the posterior end of the body. After reaching maximum growth the worm pupates in the soil at about 4 inches from the surface and light cultivation would exercise a certain amount of control at this stage. As for the use of arsenical poisons on tobacco leaf it is a well known fact that there is local prejudice against its use—poisoning being feared from use of tobacco so treated. From analyses carried out by the Bureau of Chemistry, U.S. Department of Agriculture, of tobacco leaf treated properly 2 or 3 times with Paris Green or Arsenate of Lead, the maximum amount recovered was $\frac{1}{2}$ grain from 1lb. of leaf—now the fatal dose for a normal adult human being is from 2 to 3 grains. Experimental work elsewhere has shown that excessive dosages beyond what is required for worm control must be applied to have any ultimate and deleterious effect upon consumers; moreover such excessive use would result in very apparent injury in the field.

A point to be borne in mind by those raising objection to the use of arsenicals on tobacco is this, that consumers of the weed are all the while taking into their system a more deadly poison in the form of nicotine to which through gradually increased usage of tobacco they have become inured just as the Styrians of old accustomed themselves to excessive doses of arsenic. The application of arsenicals in dry powder form is general over the tobacco growing areas of U.S.A., and no cases of poisoning from use of the product there have come to light. Extensive demonstration work on the use of arsenate of lead upon tobacco are being conducted from the Clarksville, Tennessee Laboratory of the U.S. Bureau of Entomology, and it is not to be supposed our American experts are going to advocate a protective scheme against insects which will endanger human health. Under U.S. conditions with 3,500 to 4,000 plants per acre (10 large leaves

per plant when topped) $\frac{1}{3}$ to $\frac{1}{2}$ lb. of Paris Green or $3\frac{1}{2}$ lbs. arsenate of lead are sufficient for an acre. Arsenate of lead is used alone but a carrier such as slaked lime (equal parts or 1 to 3 or 4 lime) would be best with Paris Green. Arsenate of lead is most advisable. It adheres better and has in consequence a more lasting effect than Paris Green altho' even this will only be for about one week. No injury to leaf results from excessive doses of arsenate of lead, which could not be said of Paris Green. This injury from Paris Green is due to arsenic in a form soluble in water being present and immediately one has a shower of rain this injury will result especially in low grades of Paris Green. The U.S. Insecticide Law (1910) demands a grade containing arsenic in water soluble form not more than $3\frac{1}{2}$ per cent. while for arsenate of lead it demands not more than $\frac{3}{4}$ of 1 per cent. theoretically then burning is less possible with arsenate of lead. It is advisable, therefore, on ordering or accepting such arsenicals to demand an analysis which will satisfy the U.S. Insecticide Law.

Two makes of Dust Gun were shown for applying insecticides and their use demonstrated.

Monarch Dust Gun (Tow Lemons Mfg. Coy., Springfield, Tenn.)

\$7 f.o.b., New York.

Champion Dust Gun, No. 2, (Leggett and Brother, 301 Pearl St., New York.)

\$10 less 10% f.o.b., New York.

Champion Dust Gun, Regular, \$8 less 10%.

The Monarch gave most satisfaction to those present, altho' the cheapest gun throwing out the dust in a fine white mist with its powerful fan.

Two grades of lead arsenate were known to the Entomologist, from experience, in a consistency fine enough for dust gun use.

T.P. Arsenate of Lead (Grasselli Chemical Coy., 80 Maiden Lane, New York.)

17 cts. per lb. in 100 lb. kegs { f.o.b., New York, cash on
17½ cts. per lb. in 50 lb. kegs. } order.

Corona Dry Arsenate of Lead (Corona Chemical Coy., Milwaukee, Wis.)

18½ cts. per lb. in 100 lb. kegs }
19 cts. per lb. in 50 lb. kegs } f.o.b., New York.

These are current quotations and slightly higher owing to war.

Splitworm.—This pest does not concern growers much in Jamaica where wrapper is not much grown. The caterpillar of the tiny greyish moth concerned, mines out galleries between the upper and lower epidermis of the leaf, hence the popular name Splitworm. These areas become brown and wrapper leaf so affected is weakened and disfigured. In 1912 at Dade City, Florida, one grower suffered a loss of \$12,000 on his 80 acres of shade tobacco due to this pest. One curious point of this insect is that in localities it is a grave enemy of Irish potatoes, e.g., in California at El Monte, two growers suffered an estimated loss of \$90,000 and \$70,000 respectively (Bulletin 59, U.S. Dept. of Agriculture). In the latter case the tubers are mined and the crop destroyed and potato sections exercise rigid quarantine against infested areas lest tubers containing the pest be introduced.

Flea Beetle.—This is a pest of the seed bed and could be in years a very serious enemy, some growers in U.S.A. resorting to the screening of the seed beds with muslin. American growers experience what may be termed a flea beetle year once in 8 or 9 years—the outbreak of 1907 resulting in a loss of about \$2,000,000. The adult beetle skeletonizes rounded areas in the leaf. It is a tiny brownish beetle and very alert, its proficiency in the saltatorial art, due to greatly strengthened hind limbs, meriting for it its popular name! The eggs are laid towards the base of plants or on the ground and the beetle grubs feed upon the roots of vegetation. In the seed bed a strong application of arsenate of lead (1 lb. in 12-16 gallons water) will effect control.

Bud Worm.—At times the bud is attacked by caterpillars of certain moths, the corn ear worm or cotton boll worm being at times the one concerned. Sprinkle a mixture, $\frac{1}{2}$ teaspoonful Paris Green and quart fine corn meal, into buds.

Cigarette Beetle.—This is a very common pest of stored tobacco and also of certain drugs and food stuffs. In Clarksville—one of the big tobacco centres of U.S.A.—the beetles in their flight at dusk from the store rooms and snuff factories, invade the homes being attracted by the light and fall into the food displayed for the evening meal in enormous numbers. Snuff blenders do not trouble over this insect as beetle or tobacco all goes into the gross weight of snuff, but to the cigar maker it is a source of endless trouble. The tobacco may be infested when brought to the factory and so the warehouse is invaded: the beetles spreading and commencing to breed in sound tobacco.

It is advisable that all worthless trashy tobacco should be destroyed and the corners of warehouse kept perfectly clear of trash or powder. Tobacco should be examined before admission to storage and if infested fumigated with Cyanide or Carbon bi-sulphide. There is no damage to tobacco so treated. Carbon bi-sulphide for tobacco work should be used at the rate of 4 lbs. per 1,000 cub ft. of space for 48 hours. It would be advisable to keep trays of newly rolled cigars screened or covered and they ought to be boxed so soon as possible, but on no account should cigars be left uncovered in the factory overnight else the beetles will deposit their eggs upon the cigars so left, and the damage committed by the beetles and beetle grubs resulting, will only become apparent later to the poor unfortunate devotee of my lady Nicotone who finds his favorite smokes drawing too freely!! Cleanliness and careful and immediate storage are the keynotes to success in combating this annoyance.

A case of the insects concerned from the Entomologists private collection and diagrams and specimens of injury were on view.

A. H. RITCHIE,

Government Entomologist.

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ADVERTISEMENT.

Les Plantations d'Haiti require the services as assistant manager on a plantation situated near Cap Haitien, north coast of Haiti, of a gentleman thoroughly competent in the line of sugar cane cultivation, having good experience in the use of agricultural implements. Some knowledge of French language useful.

Address letters to MR. E. HERMANN, President des Plantations d'Haiti.
Cap Haitien,
Haiti.

CORN COBS.

It is the prevailing practice here to fling away the cobs after the corn has been shelled from them; yet when ground up along with the corn into a meal, corn cobs have a considerable food value, as has been demonstrated by long continued experiments in the United States. As we have before written in this Journal, there are mills so fitted that they can grind up the whole cob with the grain on it, and this mixture makes an exceedingly good food for working horses and mules and also for pigs; in fact, the ash from burned corn cobs is very rich in potash and this is of very great medicinal value for pigs over common wood-ash, which we have often stated should be fed to pigs in small proportions with their food. As the result of an experiment made in the United States where 10 pigs and 20 steers formed the subjects of the experiment, the object being to test the question of the food value of corn cobs, it was found that 1 lb. of corn and cob meal was worth more, as a food, than 1 lb. of meal made from the corn alone. Now as there is a large proportion of the ear, cob, i.e., the cob is worth about 18%, it seems that there is an undoubted waste in not utilising the cobs—waste in two directions, because, first the corn has to be shelled and then ground into meal, whereas the shelling is saved by grinding the corn and the cob together; and secondly, the additional food value in the cob.

It should be borne in mind, however, that the corn and cobs must be ground fine, but the mills are set to do this. It has also to be remembered that to grind whole ears about three times as much power is wanted than in grinding the same amount of shelled corn. The following analysis should be of interest:—

—		Albuminoids per cent.	Digest. Nutrients Carbo Hydrates per cent.	Fat per cent.	Comparative Value
Corn Cobs	from	6	41.6	.2	37
	to	1.1	43.2	.4	49
Corn Stalks		1.1	37.0	.3	36
Corn		8.4	60.6	4.8	100

Professor E. W. Stewart, in his "Feeding Animals," recommends strongly to pass the whole corn crop—stalks, ears, and all—through a large cutter and reduce it to a fine chaff.

That corn cobs, which here are always waste product, have a very considerable value as stock food has been demonstrated in the long continued general experience of American farmers.

A ton of ordinary wood when burned only gives 100 lbs. of Potash, 32 lbs. of Phosphoric Acid, 640 lbs. of Lime.

Sawdust when burned into ash gives, 70 lbs. of Potash, 160 lbs. of Phosphoric Acid, 680 lbs. of Lime.

But a ton of Corn cobs burned to ash, gives, 500 lbs. of Potash 90 lbs. of Phosphoric Acid, 140 lbs. of Lime

WET SUGAR.

The future of the Sugar Industry is so promising, that a few suggestions on the manufacture of that product, especially with reference to the description locally known as "wet sugar", may not be out of place.

Of late years, the manufacture of Muscovado sugar has gradually given place to crystallised or "Albion", and the establishment of factories in Vere and elsewhere has tended to the improvement in quality of these kinds, but those estates which have still kept on the old lines have nothing to complain about, as is evidenced by the quotations received lately from Messrs. Gillespie Bros. and other West India Merchants. If our small planters could be induced to make and put up Muscovado sugar in barrels instead of "wet sugar," it would bring them far better results than the present method of marketing Wet Sugar or "Tin Sugar" (because it is put up in kerosene tins) which is however an article almost entirely used locally, (except for a small export to Colon), and because of this, prices depend on the law of supply and demand, with the result that the fluctuation in the markets from week to week frequently place growers (and oftentimes speculators) in "queer street." It is no uncommon event to find sugar selling at 7/- a tin one week, and the next at 3/-, to the dismay of those who have perhaps travelled long distances in the hope of realising the previous week's prices. That some combined effort should be made to make the prices of this product more stable and regular has been apparent for some time, and this phase of the subject will be dealt with in a future article. The making of wet sugar of good quality depends on several things—the use of temper lime, age of canes, soil, weather conditions, description of canes, are some of the chief factors.

1. "Temper."—The use of lime in the manufacture of wet sugar is very important. It clarifies the juice, corrects acidity, and enables the sugar to "grain." I have however heard that some sugar boilers in Clarendon make good sugar without the use of lime. If this is so, then I can only attribute it to the fact that the soil on which the canes grew must be very heavily charged with lime.

The quantity of lime to be used depend on its quality, the age of the canes and weather conditions. It is difficult to lay down any hard and fast rules, there are so many "ifs" to be taken into account, so that the art of sugar boiling lies in the experience to be gained by continual experiments.

Let me illustrate:—Canes say 10 or 11 months old ground in December (after heavy October and November rains) will take probably 2,500 to 3,000 gallons to give a ton of sugar, yet in April following, with a dry January and February, 1,100 to 1,500 gallons of juice would give a ton of sugar. It will therefore be readily seen that the quality of the lime bears an important part, when the quantity to be used has to be considered. The lime produced at the Penitentiary in Kingston may I think be classed as among the best, and if this is taken as a standard, then other limes must be used in proportion.

It may be taken as a general rule that juice rich in saccharine content, requires less lime than poor juice, also where canes are grown on limestone soil, the quantity of lime required will be less than for canes grown on other soils. But here again, weather conditions may upset matters, so that a good sugar boiler has to be continually

on the alert watching everything, so as to be able to meet every change. Again, where a mill is situated a long distance away from a Boiling House, it has frequently been found necessary to temper the juice at the mill, as the juice in transit took up more acidity than it should, and so necessitating more temper (modern science attributes this to Bacterial influence and so the Chemist now solves the problem on large estates.)

A good sugar boiler starts by first tempering his liquor either in the receiver or in the first boiler, and then when the liquor has reached the third stage, or near to sugar, his experience will tell him whether it is necessary or not to make further additions. It is always best to go easy at first. Most of our small sugar planters depend too much on "guess work," with the result that they are never certain of the quality of the sugar to be turned out, and yet they know from experience that good clear, clean sugar will always bring from 6d. to 1/6 a tin more than the black "muck" so frequently to be seen in the markets.

Again, the firing under the coppers or boilers either makes or mars a "skip" of sugar. When the sugar is nearly boiled, the fire under the boiler should be very carefully regulated—too much, means burnt sugar, and a burnt or cracked boiler. To sum up:—

1. Try not to grind your canes until they are about 14 months old.
2. Plant the best possible descriptions of canes so as to get the largest yield.
3. Only use the best quality of temper lime obtainable.
4. Regulate the use of this according to weather conditions, and after experimenting and finding the quantity required for a given quantity of juice.
5. Keep a careful note of this for future reference.
6. Watch carefully the firing under your coppers.
7. Skim your liquor frequently and thoroughly.
8. See that your coolers, strainers, gutter and everything else in your Boiling House are absolutely clean.
9. If you must smoke, do it outside—sugar flavoured with tobacco is not particularly nice.

In submitting the above, I wish it to be distinctly understood that I do not advocate the making of tin sugar. I would much prefer to see the small planters making and putting up their sugars in barrels, and draining the molasses, thus producing ordinary Muscovado, to sell in the local shop, in preference to "Brown Albion" made on the "Estates."

At Ulster Spring in Trelawny some 30 years ago, such planters as Messrs. Pile, Brandt, Frater, Edwards, Smith, Buckle and others found no difficulty in disposing of their sugar put up in barrels to the Merchants at Falmouth, and to-day I have no doubt that ready sales could be effected with merchants in Kingston and elsewhere. The advantage is this, that the price would not be subject to such fluctuations as frequently occur with wet sugar, whereas, if a man received an order at any time for a fixed quantity of wet sugar at a remunerative price, there would be nothing to prevent his supplying the order.

H. L. MOSSMAN,
Agricultural Instructor.

St. Catherine.

In districts with a marly soil (calcareous formation) sugar can be made without the use of lime or with the use of a very little. The stiffer clays require the use of much more lime. The addition of lime helps in separating earthy and other foreign matter from the liquor allowing of their being easily skimmed off. Lime also causes the hardening of the sugar, indeed grains will not form from sugar canes on most soils without the addition of lime.

The wet sugar produced in Clarendon is on the whole excellent. Of course there are a few districts not far from Chapelton on the May Pen side where the quality is not so good. Otherwise the sugar is of a clear colour, is clean and of good coarse grain. In a Competition I doubt if any other parish known to me could beat Clarendon. Not only are we good at "tin sugar" but at "sugar heads."

S. A. SCHLEIFER,

Agricultural Instructor.

Clarendon.

In this district the reason why Estates, after a trial, discontinued buying small settler's sugar, I am informed, was, what was bright, would not cure sufficiently to make the re-manufacture a paying concern. It contained a large amount of molasses and a proportion of half grained sugar which would not crystalize. The reasons I have gathered from exhaustive enquiry and observation are:

(1). The crushing apparatus used by a great many small settlers is not powerful enough to supply the liquor for boiling in reasonably quick time, and even when Chatanooga mills are used, they have got into the careless habit of allowing their juice to stand in a barrel for some hours. Cane juice when left for any time becomes acid and the result is a tarry, ropy, sugar.

(2) The use of lime is almost universal here, but here a great evil comes in. I have seen lime used which was taken from an old Kiln, and if it were analyzed I think you would find about 60% of calcium carbonate and 40 of dirt. This, instead of correcting the acidity and clarifying the liquor makes it worse. Only this week, I asked a man to show me his temper lime (this, after looking at a sample of his very poor sugar), and he was rather shocked when I emptied the tin at a rather poor looking root of canes and told him that that sample of lime was good enough for a second grade manure.

On the large factories the juice is run into a heater straight from the mill and clarified over a slow fire so that no time is given it to acidify.

Mr. William Rigg of Flint River, formerly overseer of Holland, has pointed out this defect to the sugar growers he has come in contact with and where his advice has been taken and the juice clarified over heat, the results have justified his contention.

I have been lecturing on this subject and good results are not wanting.

(3) Most small settlers here can make a better grade of sugar than that they make now, but as it entails some trouble and carefulness and almost scrupulous cleanliness they "can't bother" till prices are up. If a demand arose for sugar for exportation, I am certain that you there would be some good samples here, and I know that if a given grade was required a great many sugar makers could supply it.

(4) Soil has something to do with it. The canes growing on stiff lands under conditions of excessive rainfall produce as may be

reasonably expected less saccharine in their juice, but the use of quick or temper lime and the careful observance of the rules of clarifying the juice, and strict attention to cleanliness in the boiling house, the mill, the vessels and the sugar boiler, will offset this disadvantage.

None of the large planters will handle small settlers' sugar this year as they have, in addition, to their increased acreage under canes, and larger crops than usual, a large quantity of farmers' canes, and this will tax their capacity to the utmost.

R. C. SOMERVILLE. Agricultural Instructor.
Southern Westmoreland and Hanover.

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USE OF TAR IN PRUNING.

We mean Gas Tar not Stockholm Tar. Tar is now so generally used to dress all wounds on cocoa trees, that it will not be amiss to sound a note of warning as to its abuse. Of the several ways in which tar is misused, the most common and wasteful are:—

1. A too liberal use so that it runs down the bark and burns it. Such carelessness cannot be too strongly condemned. The object of the tar is to preserve the exposed wood from decay until the natural protector, the new bark, grows over it, so only sufficient should be used to cover the exposed part with a thin layer, and it should be *rubbed in* not simply *slipped on*.

2. It is no use tarring the stubs of branches left on the trees after careless pruning: these invariably decay, so that the tarring of their ends is waste of time; these should never be left, but must be pruned off flush with the bark of the branch or trunk of the tree, and then tarred.

3. Tarring rotten wood is useless. New bark will not grow over rotten wood, which moreover, retains water like a sponge and continues to rot.

It is necessary before applying tar to any spot to remove all decayed wood, cutting right into the clear, clean wood.

It should be the object of every planter to practice economy in the use of material, time and labour, therefore, whilst the correct use of tar is most desirable its abuse should be carefully avoided.

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VEGETABLES.

NUMBER OF PLANTS REQUIRED PER ACRE AT		VARIOUS DISTANCES.	
1 inch	x 10 inches.....	18 inches x 2 feet.....	14,520
1	" x 12 ".....	18 " x 30 inches.....	11,616
2 inches	x 10 ".....	18 " x 3 feet.....	9,680
2	" x 12 ".....	18 " x 4 ".....	7,260
3	" x 12 ".....	18 " x 5 ".....	5,804
4	" x 12 ".....	2 feet x 2 ".....	10,890
6	" x 12 ".....	2 " x 3 ".....	7,260
12	" x 12 ".....	2 " x 4 ".....	5,445
12	" x 15 ".....	2 " x 5 ".....	4,356
12	" x 18 ".....	3 " x 3 ".....	4,840
12	" x 25 ".....	3 " x 4 ".....	3,680
12	" x 30 ".....	3 " x 5 ".....	2,904
12	" x 3 feet.....	4 " x 4 ".....	2,722
12	" x 4 ".....	4 " x 5 ".....	2,478
12	" x 5 ".....	5 " x 5 ".....	1,742
15	" x 18 inches.....	5 " x 6 ".....	1,452
15	" x 2 feet.....	6 " x 6 ".....	1,210
15	" x 3 ".....	6 " x 7 ".....	1,037
15	" x 4 ".....	6 " x 8 ".....	907
15	" x 5 ".....	7 " x 7 ".....	888
18	" x 20 inches.....	8 " x 8 ".....	680

QUANTITY OF SEED REQUIRED FOR VARIOUS CROPS.

BUSH BEANS.—1 pint to 100 ft. of drill; $1\frac{1}{4}$ bus. per acre.
 BEET.—1 oz. to 50 ft. of row; 4 lbs. per acre.
 CABBAGE.—1 oz. to 300 ft. of drill; 1 oz. produces 2,000 to 2,500 plants; 1 lb. seed, 20,000 to 30,000.
 CARROT.— $\frac{1}{2}$ oz. to 100 ft. drill; $2\frac{1}{2}$ lbs. to acre.
 CORN.— $\frac{1}{4}$ to $\frac{1}{2}$ pint to 100 hills; 1 peck per acre.
 CUCUMBERS.—1 to 2 ozs. to 100 hills; 1 to 2 lbs. per acre.
 EGG PLANT.—1 oz. produces 2,000 plants.
 KOH-RABI.—1 oz. to 300 ft. of drill; 4 lbs. per acre.
 LEEK.—1 oz. to 100 ft. of drill; 4 lbs. per acre.
 LETTUCE.— $\frac{1}{4}$ oz. to 100 ft. of drill; 3 lbs. per acre.
 MELONS (MUSK).—2 ozs. per 100 hills; 4 x 4 ft.; 2 lbs. per acre.
 ONION.— $\frac{1}{2}$ oz. to 100 ft. drill; 4 to 5 lbs. per acre.
 ONION SETS.—1 quart to 50 ft. drill; 8 bus. per acre.
 PARSLEY.— $\frac{1}{2}$ oz. to 100 ft. of drill; 3 lbs. per acre.
 GREEN PEAS.—1 to 2 pints to 100 ft. drill; $1\frac{1}{2}$ to $2\frac{1}{2}$ bus. per acre.
 PEPPER.—1 oz. produces 1,500 plants.
 PUMPKINS.—4 ozs. to 100 hills.
 RADISH.—1 oz. to 100 ft. row; 10 to 12 lbs. per acre.
 SPINACH.—1 oz. to 100 ft. of drill; 5 to 6 lbs. per acre in drills; 30 lbs. per acre broadcast.
 SQUASH.—8 ozs. to 100 hills.
 TOMATO.—1 oz. produces 2,000 to 2,500 plants.
 TURNIP.—1 oz. to 200 ft. of drill; 1 to 2 lbs. per acre.

PLANTING TABLE.

This Planting Table for Vegetables is based on results in a cool mountain district and clayey soil. Local conditions will vary this to some extent.

Vegetable.

Depth to plant.

Artichokes	3 in.
Asparagus, Seed	$\frac{1}{2}$ in.
Asparagus, Plants	8 in.
Beans, bush	$1\frac{1}{2}$ -2 in.
Beets	$\frac{1}{2}$ in.
Brussel Sprouts	$\frac{1}{4}$ - $\frac{1}{2}$ in.
Cabbage, early	$\frac{1}{4}$ - $\frac{1}{2}$ in.
Cabbage, late	$\frac{1}{4}$ - $\frac{1}{2}$ in.
Carrot	$\frac{1}{4}$ - $\frac{1}{2}$ in.
Cauliflower	$\frac{1}{4}$ - $\frac{1}{2}$ in.
Celery	1-8 in.
Citron	1 in.
Corn, sweet	2 in.
Cucumbers	1 in.
Egg Plant	$\frac{1}{2}$ -1 in.
Kale or Barecole	$\frac{1}{2}$ in.
Kohl-rabi	$\frac{1}{2}$ in.
Leeks	$\frac{1}{2}$ -1 in.
Lettuce	$\frac{1}{4}$ in.
Melon, musk	1 in.
Melon, water	1 in.
Onion, seeds	$\frac{1}{2}$ -1 in.
Onion, sets	1-1 $\frac{1}{2}$ in.
Parsley	$\frac{1}{4}$ in.
Parsnip	$\frac{1}{2}$ -1 in.
Peas	2-3 in.
Pepper	$\frac{1}{2}$ in.
Potato, Irish	4-6 in.
Pumpkin	1-1 $\frac{1}{2}$ in.
Radish	$\frac{1}{2}$ in.
Rhubarb, plants	2-3 in.
Salsify	$\frac{1}{2}$ in.
SPINACH	$\frac{1}{2}$ -1 in.

Squash, summer.....	1½ in.
Squash, winter.....	1½ in.
Tomato.....	3-4 in.
Turnip.....	¼-½ in.

PLANTING DISTANCE.

Vegetable.	Distance between rows, horse cultivation.	Distance between rows, intensive or garden cultivation.	Distance between plants in rows.
Artichokes.....	3-4 ft.	3 ft.	3 ft.
Beans, bush.....	2½-3 ft.	1½-2 ft.	4-6 in.
Beets.....	2 or 2½ ft.	1-1½ ft.	3-4 in.
Cabbage, early.....	2½-3 ft.	2-2½ ft.	18 in.-2 ft.
Cabbage, late.....	3 ft.	2½ ft.	2-2½ ft.
Carrot.....	2-2½ ft.	16-18 in.	2-3 in.
Corn.....	3-4 ft.	2-2½ ft.	3 ft.
Cucumbers.....	6 ft.	4 ft.	1 ft.
Egg Plant.....	2½-3 ft.	2-2½ ft.	1½ ft.
Kohl-rabi.....	2-2½ ft.	1½-2 ft.	6 in.
Lettuce.....	2 ft.	1-1½ ft.	4-6 in.
Melon, mush.....	6 ft.	6 ft.	12 in.
Melon, water.....	7-9 ft.	4-6 ft.	4-6 ft.
Onion, seeds.....	2-2½ ft.	1-1½ ft.	8 plants to 1 ft
Onion, sets.....	2-2½ ft.	1-1½ ft.	1 in.
Parsley.....	2-2½ ft.	1-1½ ft.	2-4 in.
Peas (Green).....	2½-3 ft.	2 ft.	½ in.
Blackeye and Caroline.....	3½-4 ft.	2-3 ft.	2 ft.
Cowpeas.....			
Pepper.....	2-2½ ft.	1½-2 ft.	15-18 in.
Potato, Irish.....	2½-3 ft.	2-2½ ft.	9-12 in.
Pumpkin.....	6-8 ft.	6-8 ft.	6-8 ft.
Radish.....	2-2½ ft.	6-12 in.	½-1 in.
Spinach.....	2-2½ ft.	6-12 in.	½-1 in.
Squash.....	3-4 ft.	3-4 ft.	3 ft.
Tomato.....	3-5 ft.	1½-2 ft.	3 ft.
Turnip.....	2-2½ ft.	1½-2 ft.	4-6 in.

SEASONABLE HINTS.

We dealt with garden vegetables pretty fully in last issue, and what we wrote stands good for November and December. Good seasons have generally prevailed all through October, and at the end a superabundance of rain. Those who had already good drainage—trenches judiciously spaced and made—in their fields will benefit as very little could be done from August to remedy any failings in this direction. Those who do not believe in a thorough system of trenching should read the short article in our last issue on "Save Your Land" and then go through their fields with a clear mind, a critical eye, and use their powers of reasoning. If an internal debate is necessary and it is against the necessity, the utility, the wisdom and economy of thoroughly trenching on hillsides as well as in flats and valleys, we should be glad to have the arguments. It is only right we should have them.

As soon as the weather clears up for a few days get trenches cleaned out, scattering the earth between the plants and trees, not piling it on the banks of the trenches, and certainly not piling it round trees. It is through the continued wet weather that trees such as cocoa, coffee, oranges that have been badly planted, usually begin to suffer, although the result of the first sickness may not be visible until later. Deep planting or what has the same result, the piling of earth close against the necks of trees, will surely result in such trees having a very short life, and only where the soil is very good indeed, do they grow fairly well for a certain number of years. The tap root rots, then others of the main roots follow and sometimes the necks of the trees begin to show "collar rot." Then grubs commonly called "makakas" join in, and eat the affected toots too. On the banks of streams and rivers the overflow of the water leaves mud and rubbish against cocoa and other trees and this requires to be cleared away expeditiously. All cocoa trees, and this applies to coffee and oranges, indeed all economic trees—not counting bananas in this connection a tree—should have their necks or collars free of soil, where they are already deep in the soil

or as often happens in weeding and forking, soil has been packed round the lower part of the trunk, they should be opened up, and some lime dusted in: lime is a good soil disinfectant.

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The soil disinfectants sold under such names as Vaporite, Apterite, Pestite Vertox, etc., are good for driving away stinging ants, (we have used them continually for such purpose) which affect the roots of the trees, especially young cocoa planted at stake. and these stuffs certainly kill wire worms and kindred pests in the soil; and we think would at any rate be disagreeable to the large grubs when they attack the upper roots of cocoa, but we do not know from any experience whether these stuffs would drive away such grubs deep down in the earth where they attack some of the roots.

At any rate it would be rather expensive to use them freely, but still if effective, are not so expensive as the loss of a bearing cocoa tree. These proprietary articles are worth experimenting with.

* * * * *

POTATOES.—Just as Seed Corn is often planted too deep, in the growing of Irish Potatoes, the tubers or sets are often planted too shallow. Sets planted should not be covered with less than 4" deep of earth. That does not mean that the more earth is piled on top of them, the better will be the return—more than 6" will reduce the yield. The limit should be from 3"—6"—as near 4" as possible.

* * * * *

COCONUTS.—To keep down weeds between coconut trees in a plantation and at the same time enrich the soil, there is nothing better to grow than Bengal Beans. The growth on fair soil is enormous, the soils generally being waist deep for 3 months growth, and they only need to be planted once a year. We have very often written like this but we do not know of more than two planters who have interested themselves in this plan. It is indeed hard to get the fact to sink into the minds of planters that one cannot go on exporting, thousands and thousands of tonr, from a plantation of such a product as the coconut, rich in protein, without impoverishing the soil and reducing the quality and buantity of the crop sooner or later, marvellous as some Jamaica soils are.

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BANANAS.—Crowds of young suckers now surround the old stumps broken and cut after the storm of August. Now is the time if not done before, to make a selection of the best and cut out the others. Many have left these suckers to find out in time which are the best and strongest as some though small at the time of the storm might have been damaged. Test each with the hand and select the strongest.

There will be very little fresh planting of bananas this season but now is the time to begin preparing the soil—generally speaking. Early preparation means a lot especially on heavy soils. In the mountains, wherever growth is slow, planting can be done now.

Seasons have been excellent; "old time" weather has returned and the soil everywhere is thoroughly saturated as it has not been since the end of 1906.

* * * * *

Large crops of canes are assured, no matter whether dry weather may now follow; in fact that would be best for the ripening of canes.

Bananas are making marvellous growth but all the good seasons that can possibly ensure will not produce good fruit next year, except in the sheltered valleys where banana plants escaped severe damage by wind. There will be a great proportion of short bunches and short fingers too.

* * * * *

COFFEE.—We often wondered how coffee trees managed to live and bear at a very old age on soils that have been heavily crowded and shaded for a score or even two score years without any drainage. True the soils were mostly those with natural drainage, but sometimes even heavy soils have old coffee trees in good bearing.

Now a report from the Porto Rico Department of Agriculture tells us that from the result of experiments and investigations there, coffee is evidently one of the acid tolerating plants, as benefits from lime alone applied to the acid soils of Porto Rico have been doubtful.

* * * * *

COCOA.—The most productive cocoa tree experimented with in Porto Rico yielded the equivalent of about 4 lbs. of dried beans (commercial cocoa) with 7d per lb., equal 2/4.

STOCK NOTES.

WAR HORSES (TYPES WANTED.)

WAR HORSES (TYPES WANTED)—It would not be out of place, at this juncture, to state something of needs, in the war of army horses. British buyers are in the United States and Canada, securing types which are requisite and necessary. In order to understand what they are after I present some facts as to the demanded makes and shapes. I have been permitted by the English Board of Agriculture to send to THE GAZETTE these facts and the photographs which accompany these remarks, and to them I owe this necessary acknowledgment.

The British War Office requires only horses for active military purposes that are from four to twelve years old. Crib-biters, wind-suckers, parrot-mouthed or undershot horses, and animals with capped elbows, damaged knees, or deficient teeth are not admissible. Soundness in eyes, wind, and limb is essential; no animals with worn, upright, or overshot joints, and none with curby hocks are passed.

The cavalry horse must be a deep, short-legged short-backed, good-barreled one of the hunter type, with substance and quality and true action. He must move without brushing the joints. Light, active, well bred horses that move truly and well in their paces, are nicely ribbed-up, have plenty of bone and short backs, may thus be said to represent the ideal cavalry type. This horse's height at four years should be 15.1½ to 15.2½ hands, and more than four years he should measure 15.2 to 15.3 hands.

For the artillery type the required is a weight-carrying hunter, showing quality and ability to gallop in a gun team. These horses should be of the combined rider and driver type, with short backs, some bone and depth through the heart. They must be able to gallop when dragging guns and to maintain the pace for some considerable distance. Their work is in fact very closely allied to that of cavalry when occasion arises. Here the height at four years old is 15.2 to 15.3 hands, and over four years 15.2½ to 16 hands. The horses whose picture is given is a wheeler for artillery work and cost \$210 at four years of age in Ireland. He stands 15.3.

The Royal Field Artillery horse is also of the weight-carrying hunter type, with lots of bone and substance, a deep heart, and capable of drawing a big weight at a fast trot over rough ground and sometimes deep going. He must also be able to gallop into action. At four years old he should stand 15.2 to 15.3 hands high, and over four years 15.2½ to 16 hands. He must be active and stout-hearted, a true goer all the time. The horse in the picture shows power and at five years stands 16 hands. He cost \$210.

For the engineers, draft horses known as "parcel vanners" are the sort needed. Whatever their special duties, be they trotting long and fast journeys, or on movements that are slow and heavy, it must be ever recalled that the load they are to pull is a big one and so requires a horse of good weight. The height at four years old should be 15.2 to 15.3 hands, and at over that age 15.2½ to 16 hands.

The horse should be able to gallop with a big load behind him.

The Army Service Corps horse, also of the war type, must be able to trot with a good load behind him, but he does not require the pace of the artillery horse. His height should be 15.2½ to 15.3 hands at four years old, and over that age he should stand 15.2½ to 15.3½ hands.—*Breeders' Gazette, Chicago.*

We trust that this information will serve for those who have been writing us asking why the War Office do not require horses from Jamaica. We simply have not the type of horses wanted, in any quantity.

In re loss of animals by exposure to weather, I would suggest that the Society consider the question of making the tethering of pigs illegal. An enormous amount of cruelty is committed apart from exposure to the elements through this practice, the loss by exposure must also be very very great.

(Sgd.) W. CRADWICK.

Highgate P.O.

30th October, 1915.

We are afraid this is not a matter for special legislation for pigs alone. Prosecution for cruelty to animals might be instituted but it would be most difficult and tedious to prove a case. Goats suffer even more than pigs from exposure to heavy rains. Then again, if it was made compulsory to keep pigs in pens, we have noticed that pigs that are tethered are a great deal better off than pigs put up in pens as these are usually made. The pens are small, and in spite of all the advice and recommendations given through this JOURNAL, these pens are usually deep in filth, and not covered, so that when heavy rains come, the animals are standing in filthy water,

unable to lie down; then there are cases of cramp, rheumatism, and many deaths. We are afraid that only education can help. So many people are absolutely oblivious to the fact that animals feel; but when it is shown what losses occur through such neglect and lack of foresight, this appeal made thus to the pocket, has effect. The Agricultural Instructors have a great deal of work to do like this, side issues, perhaps, and not usually taken into account as part of their work but still it is most important work to show how losses to small stock may be avoided by the exercise of a little forethought.

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POULTRY NOTES.

In last JOURNAL we wrote of some trouble that fowls in St. Mary appeared to suffer commonly from (as reported to us) and which caused a good deal of mortality. One symptom common to all was that the fowls dwindled away; but this is a symptom of a good many different troubles. For instance, there is a disease known as "Wasting," and which is a bit of a mystery as the fowls seem to suffer from no organic disease. Then in the different forms of liver trouble, fowls dwindle away; suffering from neglected forms of roup they waste away; from tuberculosis of the lungs or any other organ they waste away. A hen supposed to be a typical specimen, sent to us from St. Mary was kept a week; it had the outward symptoms of liver disease, and its droppings were typical of an advanced form of liver disease, and on being killed and opened, its liver was found to be badly diseased.

On the other hand three fowls sent from St. Mary to the Government Veterinary Consultant—Dr. Grey—were found on being killed and opened to be suffering from bronchial catarrh. This trouble however, should be very noticeable by those familiar with roup (cold or catarrh) in its earlier stages, which if neglected may become chronic.

The wet climate of St. Mary and the usually heavy soils are favourable for causing roup if the fowls happen to be closely inbred, as they often are where fresh blood is not regularly introduced, or, where home-bred cocks are used, and close trace is not kept of the particular relationship (which is practically never done); the fowls closely bred have not much vitality to withstand unfavourable circumstances, and are usually given a badly balanced diet.

Fowls that hang around the yard should be got rid of: they are the birds that suffer first from any trouble that comes along: commonly they suffer from liver trouble. Fowls that wonder and scratch, not only keep in better health because of the exercise, but in their wanderings find worms, grubs and insects, and so balance their common diet which is always too starchy and monotonous.

* * * * *

To tell what particular trouble affects a fowl that is dwindling away is not easy, but any form of roup, or catarrh is very noticeable, as we have already written, in the early stages, not so easy when the fowls have apparently recovered from the stage of flowing roup—the running at the nostrils, the watering or gathering of roup matter in the eyes, and are in the dry roup or chronic stage: but usually even then there is one prevailing symptom—that is, the tainted breath, that skilled nostrils can nearly always detect. There is another symptom, not always prevailing, and which is hard to describe and may sometimes be mistaken for a symptom of gapes.

EGGS.—All during October eggs have been selling at 1/6 per dozen for the ordinary small country eggs, and as much as 2d. each has been given for good select eggs of good size and guaranteed freshness. Such prices will continue on until about 2 weeks from Christmas. It is the same every year; probably it will be a little worse this year because we had a big wind and rain storm in August and also one in September which sadly battered the fowls that were left to roost on trees, and that is about 90% of the poultry in the Island.

Just as bananas are timed to come in, in the spring when prices are high, and just as that is not the natural season for bananas to come in and it needs skill to bring them in at that time, so by the application of skill and attention, eggs can be produced from August until the end of the year when prices are high. It may be said that if plenty were produced the prices would not be high, but as a matter of fact half the people accustomed to eat eggs reduce their quantity because of the difficulty of getting good fresh eggs between September and December. In rainy weather and when the cool weather comes, more eggs are used. It is estimated that out of every dozen country eggs bought in the city of Kingston, there is at least 25% bad—not eatable, so that there is good money for a trade in eggs sold under guarantee of freshness, at 25% price over the ordinary market price.

In order to get plenty of eggs at this time next year, the time to begin preparing for that is now. Every few people use incubators—very few keep poultry on a large enough scale to warrant the use of an incubator; they have to depend upon using fowls or turkeys to hatch eggs, and often when they have got eggs to sit there are no sitters. We ourselves have at times used incubators and have always found a small one very handy to hold in reserve and use when no hen sitters or turkey sitters were available, but for stock birds we prefer the natural means of incubation all the time. Incubators can be got with a capacity of 25 eggs upwards—we used a 50 egg capacity. Some use 250 size, even over, here. In some centres in the United States capacities of thousands of eggs are used. Still, incubators even of the small sizes are beyond the reach of most people—not so much the purchasing of them, but the means of running them carefully. So most people still require to depend upon hens. A good many of those, however, who cannot rear turkeys to advantage, should always keep 3 or 4 hen turkeys as sitters to hatch fowl eggs; we have done so for many years and find them most satisfactory. They can cover from 16 to 20 fowl eggs, and if two are set together, and a bad hatch ensues, the chickens can be given to one, and the other set again.

In order to get pullets to begin laying next September or October (1916) chickens of the heavier breeds require to be hatched in January and February, and chickens of the lighter breeds in March and April, at latest. Fowls of the Leghorn and Minorca breeds are hardly sitters at all, and crosses of these breeds do not readily sit, at least early in the year. It is generally found that the common little fowls of the country people bought at this time and *well fed* (such good feeding as they are not accustomed to)—will lay 10 to 15 eggs in January, and go to sit, and although they do not cover many eggs they can be depended upon, failing one's own stock of fowls, to hatch at the end of January or in February; and if 2 or 3 or 4 are set together, then in the event of a bad hatch, the broods can be put into 1 or 2 lots and the other hens can be set again, provided that they are well fed and well watered. We have known sitters even to increase in weight while brooding when well attended to. A good deal depends upon the feeding and the kind of run the fowls have, as to how long the pullets will take from hatching to laying, but 7 to 8 months should be allowed at least. Indian Games take 9 to 10 months and are not profitable for egg laying. The fowls that lay earlier than 7 months never make so much body and, of course, we here want some size in our fowls.

Another result of the storms has been outbreaks of roup. Fowls roosting on trees were exposed to the heavy rains and wind for several days at a time, and even those under shelter had to go about in pools of water. Bad attacks of roup of course, become noticed and are attended to, but slight attacks are not noticed, not attended to, and often become chronic; the fowls simply do not thrive, look thin, may still eat plenty, and some ultimately recover of themselves in favourable weather; some dwindle away, may even become tuberculous. We have often described the treatment for roup. All forms of colds and bronchial troubles generally are slumped under the general term—roup.

:o:
COMMENTS.

DIARIES.—Every year we remind our readers of the usefulness of keeping a Diary to note down the chief events on the estate or holding. *So many small settlers do not keep books at all, that a Diary could also be made useful as a record of money transactions, as a beginning of more extended book-keeping, when the usefulness of cash records is proved from experience. Every one of our readers should use a Diary.*

:o:

CO-OPERATION.—Co-operation, like charity begins at home. When people can co-operate in small things in their own district, and do so successfully, they will be preparing for larger and wider co-operation. The latter cannot be successful when the simplest forms of co-operation are not yet understood and practiced.

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SOY BEANS.—We know of two places where these Beans have been very successful. If they can be grown commonly, as we have written before, they would be a very valuable addition to our food-

stuffs as they are more nutritious even than our common peas and beans. Soy Beans are the mainstay of the Japanese nation and form the chief source of protein in their diet. One grower here who has had success with these Beans, mentions as follows:—

“These Beans bear in poor soil and the pods adhere so securely that strong winds or heavy rains do not disturb them. Again they are drought-resisters.”

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CENTRIFUGAL MACHINES.—Some of our Branch Societies in sugar making districts, where large quantities of small settlers sugar is made have been enquiring about a cheap Centrifugal machine for making sugar locally—a good household sugar that could be sold in shops or exported—on a small scale to be dealt with centrally. On enquiry the cheapest machine we can find is one costing £174 with no mixer—£226 with mixer. Without a mixer the mass of wet sugar must be broken up by hand and dumped in the machine direct. The machine mentioned would grind about 800 lbs. of sugar per hour. Power—whether water, steam or oil, would of course be additional.

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JOURNAL.—The Chairman of a Branch Society has suggested that at each Meeting a member (or members) of the Branch should be appointed to read the last issue of the JOURNAL previous to the next meeting and select therefrom what in his opinion is the best and most useful article for the particular Branch and discuss it at the next meeting and that it should be put on the Agenda as a part of the regular business of each meeting.

This is an excellent idea and a very practical method of insuring that the articles in the JOURNAL reach most of those which they are intended for. We know from letters we receive that the JOURNAL is often read so casually that we are written to, asking for exactly the same information as was already given in the JOURNAL the month previously.

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SAUCE.—We calculate that 99% of the sauces used on tables in Jamaica is imported, and that perhaps 80% of the sauce used is the common brown sauce, commonly called ‘Worcester Sauce,’ not special sauces like Tomato, etc.

Yet we have here in Jamaica endless opportunity of making our own sauce. We have as the best basis of any sauce—probably used by most manufacturers of brown sauce abroad—Cassareep, made from the juice of Bitter Cassava. This is largely used we believe in British Guiana (Demerara) and in French Guiana (Cayenne). We imported a sample here and certainly it was strong and pungent enough, yet withal good. It is stated to have certain beneficial qualities, particularly of a digestive nature.

We asked in this JOURNAL some months ago, how many here could tell what *Cassareep* was, and we found some who did not know.

A very fine Tomato Sauce can be made from the small pungent wild tomatoes, with other flavouring, and Cassareep as the basis. The juice of these wild Tomatoes is a good stomachic and liver tonic. Then there is Tamarind Sauce, seldom seen, but very fine also.

Mrs. Fray of Spring Plain has valiantly struggled to put up in very nice and attractive forms many preparations of Cassava, and one of these is pure Cassareep, for use in making Sauces at home; and also a table Sauce ready made. Lots of native preparations

which might be made marketable, are put up so roughly and carelessly that people will not purchase them, but Mrs. Fray's preparations are fit for the most fastidious market abroad. We commend them.

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PLANT USEFUL TREES.—There are at Hope Gardens some thousands of fine young Breadnut trees in bamboo pots now ready to plant out, and some thousands of strong young Mahogany trees, also just ready to plant out.

These are now offered free and our readers should take advantage of the offer. Breadnut trees are most useful to plant in odd corners on all estates large and small, especially where there is rocky land; the foliage makes most useful fodder for stock and the timber is very valuable for indoor work, making beautiful boards.

Everyone knows how valuable Mahogany is and as these trees are becoming scarce, many should be planted out even though it may be the next generation that will benefit.

Apply to the Hon. Director of Agriculture, Kingston, postage to whom is free. Postage to this Office, however, is *not* free. This is a reminder to many who send unstamped letters to *us* on which we have to pay double postage.

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KOLA.—At one time a considerable number of kola trees were planted in the Island and some estates had a good many of these trees growing, but the demand for kola was fluctuating and precarious, and as some proprietors considered the kola trees interfered somewhat with their cocoa through which they were planted, a good many cut the kola trees down. We think it was a mistake to destroy these, for kola trees grow larger than cocoa and when trimmed high make a very good shade. There is a large demand for kola this year at a good price, and those who have kept their kola are pleased. Any one who desire to plant kola trees can get them from Hope Gardens at 1d. each. We do not offer any opinion as to the wisdom of planting kola because when the trees come into bearing circumstances may be quite different from what they are now. Some proprietors think—and rightly—that it is better to have their eggs in a good many baskets, and when shade trees for cocoa are required, where soil and conditions suit other trees of some commercial value like rubber and kola, it is better to plant these through the cocoa rather than Immortelles that are of no commercial value, (except that they are leguminous); they are also easily broken in a storm, which is a great disadvantage.

We know an old cocoa plantation giving a large yield, and it has kola, nutmegs and rubber trees—old trees—bearing well, all interplanted, while along the river banks, the mistake was not made of cutting out the bamboos—the natural protectors of the banks—and not replacing them with something of commercial value, for there are great cedar and rubber trees growing, the roots of which now form a rampart against flood waters.

It is the failing of some to sacrifice everything because of the present day prosperity of one crop, such as cocoa, but the old people who planted out cocoa twenty-five years ago, took care to diversify; and twenty years hence, the planter who has some other trees of fair commercial value in addition to cocoa, will not require to grumble that some years between he got a little less from his cocoa than some neighbours—probably his average over the series of years will be better. Look ahead and diversify.

WASTE—MILK, BUTTER, CHEESE.—Other kinds of waste not so evident are our unutilized resources. Take the very large amounts paid for Condensed Milk, Butter and Cheese, and yet thousands of un milked cows roam over our pastures, and thousands of settlers cows are tethered out on rope, which only need to be regularly milked, with care and knowledge to yield a good supply for the household, and where there are several cows kept, give enough for butter too.

A country like this should be running co-operative creameries for making butter and cheese, supplying all our wants, importing no milk, no butter, no cheese, no ham and no bacon (as there would be enough milk under an intensive system to spare to feed a pig or two) raising fine quiet utility cows of double value, the present system or lack of system; utilizing also every corner for raising feed and saving the manure from the yard-fed cows for application to the soil. In every way the country would be the gainer, in saving imports, producing better cows, making the soil richer.

—————:O:—————

TICKS.—This Society has two active campaigns going on, which means that among our various efforts these two are specialised on for a time in some parishes. One is Corn Growing: increase of crops by better seed, better cultivation, proper drying, careful storing. The other subject is, Ticks. We are out against these pests in force; and now, when there are good seasons, plenty of grass, plenty of water, is the precise psychological time to get ticks in hand by spraying. There are two dipping or swimming tanks for cattle in the Island, and there will be more perhaps in time, central dipping tanks and compulsory dipping, if those who own cattle will not take steps of themselves to get ticks well exterminated.

Meantime, the effort to be made most easily and economically is by spraying with a hand spray for a few cows and a 2½ or 4 gallon tank spray for larger numbers.

—————:O:—————

RUBBER.—It is stated that the price of rubber in Germany is £3 per kilogram (2 1-5 lbs.), potato flour, £3 6/, per 220 lbs. and vinegar 4/, per kilo (2 1-5 lbs.) The price of rubber in London is 2/3 per lb. compared with Germany at 30/, per lb. Of course supplies are shut off from Germany, and this affects the price in those markets that are open, making it cheaper, owing to less competition.

—————:O:—————

SEED CORN.—We are keeping seed corn from September until the spring—(1) Shelled and dry in a box with Napthalene; (2) in the cob, husked and hung up in an open shed; (3) in the cob and husk hung up in a close store. We shall see which gives the best seed in January.

* * * *

Your seed corn has grown splendidly; not a single miss.

The Guinea Corn was not so good; a good many of the grains seemed abortive.

Malvern Correspondent.

But the Guinea Corn (White) had been kept since January last, and we did not expect it to be planted later than August this year, so relaxed cure. We have had a demand, however, up to the end of October.)

Will you kindly allow me through your columns to congratulate Mr. W. Kirkpatrick on his article in the October JOURNAL *re* utilization of Waste. In my opinion, the waste of blood and bones at the Kingston Slaughter House, if it actually takes place, is little short of criminal. Of all the "artificial" manures which have been tried on the northside none have proved anything like so satisfactory as blood and bones; if these were properly combined with the other wastes from the slaughter house they would sell like hot cakes, and an increase in our exports would be bound to result.

Other wastes occur to me, what becomes of the residue of the Kingston "Dunp Heap"?

Who is responsible for the weekly or oftener bonfire of banana trash alongside the V on the Railway track at the Kingston Railway Station? It would appear ridiculous to think that the commonest labourer in the Jamaica Government Railway does not know that this is the most valuable manure in Jamaica, and however weary we may get at times of saying it, "Jamaica is dependent entirely on Agriculture." Surely steps should be taken to stop that Bonfire and its waste of valuable material, to say nothing of the clouds of ashes which fill ones eyes and nose sometimes when travelling by train.

The use of these wastes combined with a proper system of cultivating leguminous crops and the use of lime would increase the fertility of our soils many fold.

"CONSTANT READER."

1st Nov., 1915.

i A valued correspondent and frank critic writes:—The October JOURNAL is to hand and I think it is a first-class number.

(1) Referring to corn, what is the cost of a machine for grinding up corn cobs with the grain on, ready for feeding purposes?

Here is another item of information for you on corn, 14 acres of aland were planted on an estate in St. Mary through bananas, $2\frac{1}{2}$ bushels of seed corn were used for planting and the uield was $394\frac{1}{2}$ bushels. Not bad for St. Mary which s not a corn parish.

(2) Where can rice bran be procured and at what price? I gather from the Journal that it is useful for feeding all kinds of animals including poultry.

(3) I notice what you say about the dog as a parasite distributor, what is in your opinion the best wash for dogs? Paraph seems to be the best one that we have discovered so far, perhaps you know of a better. How can dogs be kept free of worms, or the presence of worms in dogs be detected?

(4) Your note on Tansy for Hook Worm is also very interesting: Why cannot we develop a manufacture of this kind in Jamaica? Goodness knows there is Tansy enough in some parts of the Island and if it is good for anything like that, why not utilize it, it grows on land that will not even feed a cow to 10 acres, and if the Tansy could be made of value it would mean an enormous increase in value to some properties!

(5) Then again the salt beef and pork problem, why is it that this cannot be made a business in Jamaica, could not beef be salted in Kingston and pork as well, could it not be carried on the Jamaica Railway in a refrigerator car so that the enormous loss and expense in transporting live animals from the Montpelier district, from St. Elizabeth, and St. Ann might be avoided, send the price of cattle up, a penny per pound, and reduce the price of beef by twopence, and pork in the same way.

Is it want of co-operation all round or simply because we do not understand or realise the possibilities of the country we live in?

There is an old Jamaica proverb that "Finger always say look yonder," and there seems to be a great disposition to believe that wonderful things can be done without any trouble anywhere but in Jamaica. Of course we should have to make the home grown product equal to the imported one and similar in appearance, flavour and everything else, before it would sell readily. I am afraid there is too much a tendency when attempting to produce things locally to study ones individual taste and try to force these on ones customers.

(6) Take a common article which ought to be much commoner still, that is butter, people will give you some awful stuff, call it fresh butter and expect you to like it, while neither in appearance or flavour has it any of the characteristics which one has been led to consider constitute good fresh butter. Mind you I do not mean to say that there are not plenty of people in Jamaica who can and do make good fresh butter and probably salt beef, pork and bacon too, but in order to make this a success they would have to consistently imitate the ordinary standard.

CONSTANT READER.

We are glad you think the Journal for October good. It is not an easy task to keep up a monthly Journal with interesting and likely to be useful articles, when you consider the different classes of cultivators we have to cater for.

2. Mills for grinding up corn on the cob, and which can also be set to grind grain, can be had for about £4, i.e., by hand. Most of such mills used in the United States, however, are made for power. We have one such mill here now that can be used with a sweep—you know what that means—a donkey, cow, or mule, can pull it like a cane mill, and it is cheap. It can grind large quantities at one time, and has extra grinding parts, all for £6.

3. The return of corn you mention is very good, if I take it that the corn was not planted close to the bananas; it would work out at 28 bushels an acre for the whole field.

4. Rice Bran.—The new crop will be available in the month of January. We shall be getting a lot up by drogher when it is available, and you could book your order through us, if you care. It comes very cheap, about half the price of corn weight for weight.

5. Paranaph is a good wash for dogs, but it has to be used different from the instructions. The strength given from the Laboratory used as an ordinary wash, does not kill fleas. What we do is to wet the dog—not soak him to drip—merely wet the skin, then smear the hand with Paranaph and rub it well in. Then let him stay for half an hour to let the Paranaph dry in, and then wash off—if washed off immediately the fleas are not killed and recover. This should be done once a week. This keeps dogs fairly free of fleas. A piece of cloth dipped in kerosine and rubbed along the small of the back between whiles, is useful for dogs that are exposed to reinfection and are not pet dogs; kerosine would be objectionable for a dog that occupies the best cushions in the house, or jumps up on a lady's lap.

6. To keep dogs free of worms they should be dosed once a month. We have been trying to get a dog ball made up and put on the market that would be cheap, easy, and handy to use; such a thing would be most useful and would have good sale. To keep dogs free of all kinds of worms otherwise, takes a combination of drugs—Iron, Santonine, Thymol, etc.—often bothersome to get and to mix in the right proportions.

7. If a decoction of Tansy, commonly used for worms, is effective against Hook Worm, this should be investigated and proved by the Chemist's Department.

8. The difficulty with many native products in Jamaica against the imported from corn down to beef and soap—is that we are a small community and changes happen very abruptly. In a larger country what affects one part does not often affect another, and there is railway communication so that any enterprises which cannot get supplies locally can usually tide over a scarce time by getting supplies from a distance. Times of scarcity and plenty succeed each other in Jamaica, and sometimes between the time any enterprise is started and the time it is ready to work, the particular product that is necessary cannot be got readily. For instance, a storm in July would have upset all our corn crop calculations: (as a matter of fact happening in August it upset our own calculations for seed corn which requires to be dried long in the field.) Cattle are rather plentiful now—they were scarce a year ago—and they are plentiful not so much because of plenty of grass but because the consumption of meat owing to hard times has fallen off; people buy imported salt beef and salt pork to make soup. However, start a factory for making salt beef, and it would happen that it would not get enough stock. Take also the pig business. There was a great rush and cry to get pigs from March to August, because of the great abundance of bananas and plenty of other feeding. The storm of August came. Now those who have laid in stocks of pigs want to sell them as they cannot get cheap feeding. The calculations of a pork factory would have been entirely upset as they have been often upset before.

9. You are entirely right about butter. The common idea is that you have simply to take cream, put it in any kind of churn, and the coagulated stuff ensuing is—butter; but it has either a lardy flavour or no flavour at all. The art of making butter, is as difficult as the art of making German Rum, and while an old distiller can make, and tell good Rum by his nose without ever having been in a Laboratory, so mayan expert Butter maker tell good Butter who knows nothing about the theory of ripening, cream, etc. For making butter the cream has to be properly ripened at a certain temperature; a skilled nose and taste can tell when cream is at the proper stage. Churning has also to take place at a certain temperature.

WAR GIFTS.

The following War Gifts have been contributed and despatched per the Jamaica Agricultural Society, for the fortnight ending October 25th, 1915.

I.—FOR GENERAL DISTRIBUTION AMONG HOSPITALS.

A.—Preserves.		
Donor & Address.	Quantity.	Kind.
Grand Cayman (an Island Gift)	45 tins (450 lbs.)	Guava Jelly
<i>B.—Citrus Fruit.</i>		
Mrs. W. W. Wynne, Brokenhurst, Mandeville	11 boxes	Oranges
Mrs. S. Moxsy, Suttons, Chapelton	2 "	Grapefruit
	3 "	Grapefruit
Stony Hill Branch (per W. J. Brooks, Esq., Stony Hill)	30 "	Oranges
Mrs. H. E. Crum Ewing, Knockpatrick, Mandeville	3 "	"
Sir John Pringle, K.C.M.G., Shaw Park	20 "	Grapefruit
Miss Ann Crossley, Kendal Lodge, Buff Bay	7 "	
	1 "	Limes
Capt. Alex. Bonitto, Battersea, Mandeville	17 "	Oranges
J. B. Caine, Esq., Devon (per Thos. Powell, Esq., Mile Gully)	9 "	"
R. E. Lewis, Esq., Mandeville	10 "	
F. J. Delapenha, Esq., Williamsfield	20 "	"
	20 "	Grapefruit
Mrs. Anna Maxwell, Friendship, Myersville	3 "	Limes

C.—Limejuice.

Arthur George, Esq., Kingston	1 keg (about 10 gallons)
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II.—ADDRESSED TO SPECIAL HOSPITALS, ETC.

A.—Cigarettes.

Donor & Address.	Gift.	Destination.
The people of the Friendship Tabernacle, St. Anp, (per Mrs. Jas. Johnston, Brown's Town)	2,000 Cigarettes	St. Bartholomew's Hospital London.

B.—Clothing.

Miss I. Fernandez, 115 Duke St., Kingston	1 Case (containing 22 pieces children's clothing)	For Soldiers' Orphans.
Miss Ada Symons, Old Hope Rd., Cross Roads P.O.	44 pieces children's clothes	J. Navaux, Esq., Hon. Sec. Belgian Relief Funds, 32 Goswell Re., London, EC
Miss B. L. McLean, 120 Duke St., Kingston	22 pieces clothes	do
Misses M. Symonnett and B. & T. Franklin, 99 Church St., Kingston	20 Children's dresses	do
Ladies' Working Association, per Mrs. Pearce, Cross Roads, Kingston)	500 Garments	do
do	400 bags for Casualty Stations	Lady Smith-Dorrien, 21 Easton Terrace, London.
do	165 Garments and 20 Pillows	Red Cross Stores Dept., 83 Pall Mall, London.

C.—Citrus Fruit.

Mrs. R. Craig, Chapelton	5 boxes Grapefruit	The Red Cross Hospital,
	4 „ Oranges	Aberlour (on Spey),
	1 „ Limes	Scotland.
Mrs. W. W. Wynne,	2 „ Oranges	The Southern General Hos-
Mandeville		pital.
do	2 „ Oranges	The Town Hall, Southern
		General Hospital, Oxford
Capt. Alex. Bonitto, Batter-	3 „ Oranges	Nurse Phyllis Cork, Carri-
sea, Mandeville		den House Hospital,,
		Bo'ness, Scotland.

The following War Gifts were contributed and despatched to the United Kingdom, addressed to the Crown Agents, London, per the Jamaica Agricultural Society during the fortnight ending November 8th, 1915:—

I. FOR GENERAL DISTRIBUTION AMONG HOSPITALS.—

Donor & Address.	Quantity.	Kind.
Mrs. W. W. Wynne,	12 boxes	Oranges
Mandeville	3 „	Grapefruit
Hon. J. R. Williams,	16 „	Oranges
Bethel Town	5 „	Grapefruit
Per H. A. Blake, Ewarton---		
Jno. McKoy	1 „	„
Theophilus Martin	1 „	„
Robert Thomas & Co.	5 „	„
H. A. Blake	3 „	„
do	5 „	Oranges
J. U. Blake	1 „	„
Wm. Paterson	1 „	„
Wm. A. Whoms	1 „	„
F. J. Delapenha, Mandeville	40 „	Oranges & Grapefruit
H. A. Jacobs, Mandeville	12 „	Oranges
Sir John Pringle, Clonmel	10 „	„
	10 „	Grapefruit
Mrs. H. E. Crum Ewing	2 „	Oranges
Mandeville		
Cecil R. Isaacs, Mandeville	35 „	„
S. A. Hendriks, Porus	20 „	„
J. A. Gallimore, Four Paths	10 „	Oranges & Grapefruit
J. B. Caine, Devon	12 „	Oranges

II. MISCELLANEOUS GIFTS FOR SPECIAL HOSPITALS, ETC.—

Donor & Address.	Gift.	Destination.
Mrs. H. E. Crum Ewing,	1 box Oranges	Barra House Hospital,
Mandeville		Largs, Ayrshire, Scotland
do	2 boxes Oranges	Bevan Military Hospital,
		Sandgate, Kent.
Mrs. T. Alexander,	1 case containing 6 tins	London, Scottish & Black
Mandeville	(60lbs.) Guava Jelly	Watch Regiments.
do	1 case containing about	Any London Hospital.
	126 Magazines	
Mandeville Ladies' Club	1 large case containing	Q. M. N. G.
	8 Pillows	
	24 Pillow Cases	Friary Court
	16 Twill Night Shirts	St. James' Palace.
	100 Soldiers' Bags	Lady Smith-Dorrien.
	6 Small Pillows	Lady French
	82 Parcels Books and	Any Hospital.
	Magazines	

The following Girls were put on board the troopship, which sailed on Monday, the 8th inst., for the use of the Jamaica and Bahama War Contingents per the Jamaica Agricultural Society:—

A. CITRUS FRUIT.—

Donor & Address.	Kind.	No. Boxes.	No. Barrels.
Hon. Geo. McGrath, Ewarton	Grapefruit	—	5
E. W. Muirhead, Mandeville	Oranges	—	5
Spaldings Branch (per W. Hyde McCaulay, Spaldings)	do	25	—
Cecil R. Isaacs, Shooter's Hill	do	—	8
Sir John Pringle, Clonmel	do	—	5
A. E. Wigan, Hartlands	Grapefruit	—	10
	do	3	—
	Oranges	6	—
R. E. Lewis, Mandeville	do	13	—
A. M. Lewis, Mandeville	do	3	5
J. M. Lewis, Yallahs	Limes	1	—
J. H. Smith, Bog Walk	Oranges	1	—
Per H. L. Mossman, Bog Walk—			
Jno. McPhail, Bog Walk	Grapefruit	10	—
A. J. Lecesne, Bog Walk	Citrus Fruit	—	2
Mrs. H. L. Mossman, Bog Walk	do	—	1
Per C. C. Glanville, Christiana,—			
Messrs. J. S. Foreman	Oranges	—	1
Feurtado	do	—	2
Evans	do	—	1
H. M. Bell, Richmond (for Corpl. Bell, No. 392.)	do	—	1
A. N. Speyer, Bog Walk, (for Lts. Rutty and Cox	do	1	—

B. PRESERVES.—

Donor & Address.	Quantity.	Kind.
Arthur George, Kingston	2 tins (20 lbs.)	Guava Jelly
Miss Cox, Half-way Tree	1 tin (10lbs.)	Guava Jelly
(For Lt. G. S. Cox, No. 1 Platoon, J.W.C.)		
Miss M. L. Gifford, New-market	2 tins (20 lbs.)	Guava Jelly
Mrs. A. B. Grey, Falmouth	2 tins (20 lbs.)	Guava Jelly
	(2 tins (20 lbs.)	Orange Marmalade
The Misses Harding, Mandeville	2 tins (20 lbs.)	Guava Jelly
Miss Lewis, Mandeville	1 tin (10 lbs.)	Guava Jelly
Mrs. H. E. Crum Ewing, Mandeville	1 tin (10 lbs.)	Guava Jelly
	1 tin (10 lbs.)	Mango Jelly
	1 tin (10 lbs.)	Pine Jam
Grand Cayman	2 tins (20 lbs.)	Guava Jelly
Guys' Hill Branch, per W. E. Watson, Guys' Hill	1 Large Jar	Guava Jelly
Mrs. Graham, Port Maria	3 bottles	Marmalade
	2 bottles	Orange in Syrup

C. MAGAZINES.—

The following people gave bundles, parcels and cases of Magazines (total 17 packages):—

Sir J. Pringle, Clonmel; Jno. McPhail, Bog Walk; Mrs. H. L. Mossman; A. J. Lecesne, Bog Walk; Mandeville Ladies' Club (1 Case); A. A. Melhado, Old Harbour; Roy Bridge, Kingston; W. Hyde McCaulay, Spaldings; Mrs. M. deCordova, Liguanea F. Max Morphy, Kingston; R. C. Hay, Kingston; Miss H. LeRey, Kingston; Mrs. J. Briscoe, Montpelier; Mrs. & Miss Jordon Andrews, Kingston; Miss Anna Crossley, Buff Bay; Chas. Chapman, Cedar Valley; J. M. Lewis, Yallahs; Mrs. Graham, Port Maria; H. Cocking, Kingston; The Secretary the Agricultural Society, Kingston; J. A. B. Clarke; W. G. Bagot-Grey.

D. LEAF TOBACCO.—

1 box from Mrs. Anne Maxwell, Myersville.

BRANCH NOTES.

SOUTHFIELD (St. Elizabeth.)—The regular meeting was held on September 17, 1915. The Rev. E. P. Williams presided. The Rev. E. P. Williams was elected President in place of Rev. H. W. Cope. In accepting the post, he promised to do all he could in the welfare of agriculture generally. The Instructor addressed the meeting on the destruction caused by (a) Caterpillars and (b) swine fever. In a clear speech he gave valuable hints as to the prevention of the ravages of caterpillars. We can aid their natural enemies by hand picking. Swine fever may be prevented but not cured. Hints were given to its prevention. The meeting then adjourned.

J. J. MILLER, Secretary.

MIZPAH (Manchester.)—A meeting was held on the 17th September. The Rev. F. Weiss occupied the Chair. Several members, the Instructor and E. D. Kinkead, Esq., (visitor) were present. Matters dealt with: (a) Reports of the Authorized Persons. (b) Letter from Mr. Barclay re appointment of Messrs. A. Gale, G. Reid, D. Stewart and Sam. Collins as Authorized Persons was read. (c) Instructor's Address—"Preparation of Produce for Market." He urged the members against improper curing and handling of sugar, banana, corn and Irish potatoes, dealt with unscrupulous buyers necessity for improving crops. A. Walder, Esq., J.P., emphasized the points raised by Instructor. Votes of thanks were accorded the Instructor.

D. J. LEWIS, Secretary.

ORACABESSA (St. Mary.)—The monthly regular meeting was held in the Oracabessa Schoolroom on September 21. There were present the President, Vice-Presidents, Secretaries and nine members. The President asked Mr. Webster to read his paper on Ticks which he had prepared. Mr. Webster dealt very ably with the subject, shewing what has been done from time to time to eliminate this pest. He pointed out the fact that it was really after the importation of Texas mules that Ticks became so prevalent. Then it was that the matter was taken well in hand, which finally resulted in Prof. Newstead's and Mr. Cousin's experiment with the various mixtures used. These men reported that the method of application was bad also the composition of the fluids used. Some of these fluids were: Sheep wash, Jeyes fluid, Kerosene Oil, Tobacco and Kerosene emulsion. He had used many of these himself, but after five years' experience had proved Paranaph to be the best, even better than Cooper's Dip for the following reasons:—Paranaph is sticky and remains on the animal for a much longer time than Cooper's Dip. Cooper's Dip is dangerous if not properly mixed, and if the animal is heated Cooper's Dip must not be used at all. After the subject was much discussed, the President suggested the following resolution to be sent in to the Government:—"Be it resolved that the destruction of Ticks by spraying or dipping be made compulsory." Mr. N. G. Silvera thought that the number of stock reared in this district was not sufficient to justify our taking up the subject. The President suggested that neighbouring societies be asked to join in the movement, and this was thought advisable. It was decided to hold a debate on the resolution on Tuesday, the 5th of October. The following reports were received from Authorized Persons:—1. Josiah Edwards who now resides in Portland made an arrest and got conviction. 2. Stephen Powell made two arrests, one man was convicted and for some reason or the other, the other man was not tried. He also spent a day investigating a charge of larceny, but having made no arrest, he was not paid. He was recommended to bring a letter proving that he had done such work, so that the Secretary might fill up the necessary form, entitling him to a day's pay. 3. Michael Sewell reported one case of obscene language. The man was fined and he received pay.

J. H. WYNTER, Secretary.

BUNKER'S HILL (Trelawny.)—The last regular monthly meeting was held on the 23rd September, 1915. There were present: Mr. C. G. F. Robertson, President, M. Rennie, Esq., Asst. Instructor and 13 members. A prize list of the Local Show held at Claremont was read by the Secretary, and with a few exceptions was adopted as being a suitable prize list for the members to be held in March next for the benefit of members, and encouragement of outsiders to become members of the Branch. After a full discussion on the various places for show, Mr. Robertson, President, promised to make himself responsible for the printing of prize lists, and placards. This kind offer was highly appreciated by all the members. The Instructor then gave valuable hints on the pruning of cocoa, and the planting and care of both cocoa and coffee. He then promised to visit the holdings of members, and in all spent two days in the cultivations of the different members: giving demonstrations in the pruning of cocoa. Another innovation which was highly appreciated was the offer of the

Instructor to spray all horses and other animals brought to him with Cooper's Dip. The next morning after the meeting quite a number of horses were brought to be sprayed. The Instructor also gave valuable hints on the use of the Syringe. He promised to make his visits weekly for the spraying of the animals with Cooper's Dip. It would appear as if in the immediate districts around, the tick is more rampant than anywhere else; and this offer to help to eradicate them is greatly appreciated by all in the district.

W. A. WRIGHT, Secretary.

CHRISTIANA (Manchester.)—The regular quarterly meeting was held in the Court House on Friday, October 1. Present: R. J. Miller, Esq., Chairman, Mr. Thos. Powell, Instructor, 16 other members including the Secretary. Matter of "Hog Sick" was brought up, and it was shown that a treatment of Jeyes and water applied externally and a dose of Castor oil will in many cases prove effective. A market for our crops. It was brought out that there were larger quantities of corn and potatoes for which no sale could be obtained. It was the opinion of the meeting that the Agricultural Society should through its Instructors endeavour to gauge the crop and induce local merchants to handle native grown products instead of the imported stuff. The Instructor showed that local markets would be found for these articles, but not until the people paid more attention to the harvesting and curing of their crops. He gave instances of unfit potatoes and immature corn being sold, and that stood in the way of sales. It would be great boon if a central factory could be established in or near Christiana, to handle the large crop of sugar which these parts are capable of producing. The feeling of the meeting was expressed in the following resolution: Resolved: "That this Branch Society, conscious of the unsatisfactory condition of our local market, begs to assure the Parent Society of its sympathy and support in establishing means of preparing and absorbing our produce in supplying our Island needs." The Delegate to the Half-Yearly Meeting tendered his report and received a hearty vote of thanks. Four Authorized Persons gave their reports. Those of Christiana reported "all correct." Rufus Brown of Lowe River dealt with four cases for which he was paid without any trouble. Mr. Robt. Butler of Coleyville tendered his resignation on the ground of ill health. He delivered up his badge and pair of handcuffs. Date of next meeting, Friday, December 17th, at 2 p.m. Meeting adjourned.

W. M. O'MEALLY, Secretary.

SPANISH TOWN (St. Catherine.)—A regular meeting was held at the rooms of the Parochial Board on Wednesday, the 6th October, at 7.30 p.m., there being present: Messrs. W. Gentle, presiding; Treasurer, Secretary and 4 other members. The Secretary reported that the regular meeting in August had fallen through. The following communications were read and dealt with as mentioned: Letter from General Secretary noting the election of Mrs. Geo. Thompson as a member, and that the "Jackson" and "Burbank" were the only varieties of seed potatoes (Irish) imported by his department, the former of which is a rounded deep-eyed potato, rather yellow fleshed and very hardy, and the latter smooth and white fleshed, but hardly so robust as the "Jackson." The Secretary was desired to enquire the price per barrel for the potatoes. Letter from the Clerk to the Director of Agriculture expressing regret that through oversight a copy of the last issue of the Bulletin of his Department was not supplied the Branch before. Noted. Circular from the Mahoe Hill Branch Society forwarded with two resolutions advocating (a) the establishment of a Shipping Department—as an adjunct to the Jamaica Agricultural Society—which would provide for an Emporium through which produce intended for exportation could be properly cured and handled, and (b) the fixing by the Agricultural Society of uniform prices to be paid throughout the colony for the various products. It was decided after discussion to defer dealing with the matter finally until the next meeting. Dr. J. Huntley Peck (D.M.O.) Spanish Town, and Mr. C. Hy. Muschett, were elected members unanimously. The Secretary reported that since the last meeting Mr. T. G. M. Stewart, an "Authorized Person," had effected 12 arrests for unlawful possession of agricultural products, and that 10 of the parties had been convicted. The members expressed themselves as pleased with the work of Mr. Stewart.

EVERARD LOPEZ, Hon. Secretary.

CAMBRIDGE-WOODFORD.—The monthly meeting was held on the 7th October, 1915. There were present: R. Nelson, Esq., who presided, the Secretary and seven other members. The special fund for defraying the cost of the Spray pump had some attention. The pump was presented to and inspected by the members. The Secretary presented a statement of the funds of the Society for half-year ending 30th September, 1915. He then urged on the members the necessity of their inviting others to join so as to make up for the falling off at the beginning of current year. A vote of thanks was accorded him for his interest in the affairs of the Society. He thanked the meeting for the expression of its good feelings. He informed the meeting that he had just received, for distribution, the seedlings ordered by Mr. Hanson from Hope Gardens.

R. A. CLARE, Secretary.

LOWER ST. DAVID'S (St. Thomas.)—The last regular meeting was held in the usual place on the 2nd October. There were present, Rev. J. A. Edwards, in the Chair, eighteen members, some visitors, and the Secretary. A letter from the Rev. Rev. A. Cole *re* the use of the Church Hall by the Branch, and another from the General Secretary with regard to Mr. Chas. Barrant, Authorized Person, were read. A committee was appointed to deal with Rev. Cole's letter, and the Secretary was directed to reply to Mr. Barclay *re* Mr. C. Barrant. A discussion arose as regards the sum which the Branch intends to raise in aid of the Jamaica Contingent Fund. At the last meeting it was decided that the amount be raised by voluntary subscriptions from individual members. The Secretary suggested that the amount thus raised be augmented by a sum voted from the general fund of the Branch. It was, however, decided that the subscriptions be first gathered in before taking further action. Mr. C. R. Johnson moved that the honorarium to Rev. Cole in appreciation of the use of the Church Hall, allowed by him, be suspended until the pressing matter of the amount for the Contingent Fund be settled. This was unanimously agreed to. After an unusually warm discussion with regard to Authorized Persons, and their duties, as arising out of the Barrant-Johnson case, the meeting came to a close with the singing of the National Anthem. T. E. CLARK, Secretary.

RICHMOND (St. Mary.)—The monthly meeting was held on Tuesday, the 5th October. Eleven members were present, besides the Instructor. The Secretary reminded the Instructor about the getting of cocoa plants at Castleton. After a few remarks by the Instructor and the President, it was agreed that Mr. T. Davis should go with his cart on Friday, the 15th, to get the plants. Authorized Persons were called upon to give their quarterly reports. Three of the men stated that no arrests had been made. Mr. T. Davis next asked the Instructor's opinion of the cultivation of cane in this locality, so that sugar could be made as an exportable article. The Instructor said, that he was of opinion that it would not be profitable, since there are no estates in this parish where the sugar or cane could be sold, yet the members could plant cane, and jointly purchase a good mill. The question of cane plants was next dealt with. The Instructor informed the members that very good plants can be obtained at Hope. All the members asked the Instructor to get the plants. Mr. W. Thomas next spoke of scarcity of eggs, and also asked the Instructor the best means of keeping eggs for a long time. This also was explained. The corn cob was also discussed, and thought to be a good feeding for horses and mules as it does not cause the animals to be sick after eating it. Lastly, the Instructor addressed the meeting on the meal made from the corn grown here. He stated that the home made meal is cheaper, and if it is properly ground equals or surpasses the imported meal. He also said that a mill can be got that would make the finest meal from one pound upwards. He also in conclusion spoke of the sickness among fowls. Some of the members spoke of the remedy applied when they have their fowls sick. The next meeting was fixed for the 1st Wednesday in November, 1915.

CHARLES GREGG, Secretary.

CRAIGHEAD (Manchester.)—The usual monthly meeting was held in the School-room at 7 p.m. on the 5th October. A very large percentage of the members answered the roll-call. Arising out of the minutes of the former meeting, the Chairman, after some preliminary remarks, moved the following resolution: "That whereas the change in the weather have become so uncertain and at the same time so disastrous to cultivation, especially the banana, which has hitherto done so much good for the country: "Be it resolved: That the Government be asked to encourage the cultivation of the corn and the sugar cane which are less susceptible to the ill effects of the frequent hurricanes by which our land is visited." Mr. A. Weston said he felt that though at present there is no market for these articles, circumstances have brought them into importance and he was sure the way would soon be opened by which these products will become a source of prosperity to the country. Mr. R. E. Samuells and others spoke in support of the resolution which was unanimously carried. The next resolution was then agreed to: "That whereas this meeting is thoroughly convinced that the Government is much concerned about the prosperity of the peasantry: "Be it resolved, that the Government be asked to adopt some means by which the small settlers may be able to dispose of their sugar at some small profit." Mr. Watson said he was quite sure that of late sugar is being sold at a loss. In these parts there is a tendency to plant canes, the lands being admirably suitable for its cultivation, but there are not many who have their own machinery for the making of the sugar, and those who have not got, cannot help facing a loss. This state of things must act as a check on the energies of the cultivator. Mr. Freckleton, as a cultivator of canes, could speak with some knowledge of the subject. The need of a market was keenly felt and if the Government could

see its way to help in this respect he was sure the country would be much better off, and there would be less "complaining in our streets." Mr. Wm. Smith thought that while in days gone by an empty bottle bore no practical value, in the present time it is eagerly sought for and collected, and money is earned by it because there is a market for it. In the same way if a market be provided for the sugar the effect on the country would be agreeably surprising. It was moved and agreed to: "Now that the road through the district is taken over by the P.W.D. and will shortly be opened up: Be it resolved that the Government be asked to give the option of working to the residents in the district instead of excluding them for the benefit of strangers." This was passed unanimously, and the meeting was brought to a close.

E. CAMPBELL, Secretary.

WAR SOP (Trelawny).—This branch held its monthly meeting on the evening of the 6th October. Present: E. Arnett, Esq., Instructor, Mr. Rennie, his assistant, the Secretary and ten other members. In the absence of the Chairman, Mr. C. Wright was asked to preside. After the minutes were read and confirmed, two letters from Mr. Barclay were read. The Secretary explained, that owing to much rain during the two previous months no meeting was held. At this stage, Mr. Rennie was given the opportunity of addressing the meeting. This he did in a very able manner choosing for his topic the rearing of cows. Mr. Arnett then spoke on the cultivation of the sugar-cane, and in connection with this read a letter from the Hon. H. H. Cousins, bearing on the subject. Mr. R. Johnston became a new member and Mr. A. Dixon paid in his subscription. Meeting was brought to a close by the singing of the National Anthem.

U. K. WALTERS, Secretary.

ALBANY (St. Mary).—The Society met on the 6th October, 1915, at Friendship. There were fourteen members and the Agricultural Instructor. The Rev. W. D. Henderson occupied the Chair in the absence of the Chairman, who is off the Island at present. Correspondence was dealt with and business discussed:—(1) Potato slips to be got from Spanish Town. (2) Cart to be sent to Castleton Gardens for cocoa plants on Friday, 15th inst. (3) Transfer of care of the boar to another person as the present keeper intimated his inability to retain same. (4) That complaint of Martin's members be considered, and Mr. L. S. Clarke arranged for a demonstration by the Instructor at Martins or Friendship, to come off the 19th inst. (5) Show Committee on financial business. (6) Treasurer's report: To date receipt, £5 14s. 5d.; expenses 4s.; balance, £5 10s. 5d. to account. The Instructor next addressed the meeting and among other things gave the hint that the Society should keep in mind the value of a small cooperative cocoa factory with a view to getting one if possible. Two Authorized Persons presented reports. One scored conviction and a fine on his capture. A few topics which might prove profitable for discussion at the meeting were then suggested by the Chairman. Mr. C. A. Hinds was appointed to bring before the next meeting any matter of practical interest to the members that he may select from the JOURNAL for the month. Next meeting fixed for Tuesday, 2nd November, 1915.

C. L. DRYDEN, Secretary.

MARLBOROUGH (St. Mary).—The monthly meeting was held on Thursday, October 14th, 1915, at 5.15 p.m. Present: The President, 1st. Vice-President, the Secretary and 10 other members. Mr. Z. French moved that a set of tools for pruning cocoa be purchased by the Branch for the use of members. It was finally agreed that the Secretary correspond with Mr. W. Cradwick re cost of same. Mr. F. F. Ferguson moved that a corn-mill be purchased by the Branch for the use of the district at large. The motion was heartily supported, but as the funds of the Branch would not permit such an expenditure at present, the matter had to be deferred until the next financial year. Read letter from the Secretary of the Parent Society re negligence shown on the part of Messrs. Scarlett and Brissett in allowing their JOURNALS for both July and August to be returned to the Society's Office. Mr. Scarlett who was present expressed his regret; but pointed out that he made several applications at the Post Office, but without success. After some little talk with Mr. Scarlett, and on his promising to be more careful in the future, the Secretary was instructed to apply to the Jamaica Agricultural Society for his reinstatement. Reports from two Authorized Persons were received. Mr. Barber reported everything correct in his district, while Mr. Walker reported the absconding of one Solomon Stephen while being taken to certain parties from whom he alleged he got some yams, for which he was held on suspicion. Report of Treasurer was read and adopted. The Secretary announced the annual meeting to be held in November, when officers to serve for the ensuing year would be elected.

R. SAML. FINLAYSON, Secretary.

The Journal

OF THE

Jamaica Agricultural Society.

The more people do the more they can do : he who does nothing renders himself incapable of doing anything ; while we are executing one work we are preparing ourselves for undertaking another.

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No. 12.

BOARD OF MANAGEMENT.

The usual monthly Meeting of the Board of Management of the Jamaica Agricultural Society was held at the Office of the Society, 11 North Parade, Kingston, on Thursday, 18th November, 1915, at 11.40 a.m. Present: His Excellency Sir Wm. H. Manning, K.C.M.G., C.B., (presiding); Sir Jno. Pringle, K.C.M.G., and Hon. P. C. Cork, C.M.G. (Vice-Presidents), Hons. L. J. Bertram, C.M.G., D. Campbell, R. P. Simmonds and S. S. Stedman, Rev. W. T. Graham, Messrs. Robt. Craig, A. W. Douet, H. Q. Levy, A. C. L. Martin, Conrad Watson and the Secretary, Jno. Barclay.

Apologies for Absence.—The Secretary read apologies for absence from the Hon. Geo. McGrath and J. R. Williams, and Mr. Adam Roxburgh.

The Minutes of the previous Meeting which had been printed and circulated were taken as read and confirmed.

Statement of Accounts.—Statement of Accounts was submitted.

The following matters arising out of the previous Minutes were considered:—

(a) *Special Committee on Insurance of Crops.*—The Secretary said that all the gentlemen, outside of the Board of Management, who were nominated as members of this Committee had duly accepted, a meeting of the Committee being held the previous afternoon, but there was nothing definite to report yet. The next meeting of the Committee would be held on the day before the next Board Meeting.

(b) *Ladies' (Provisional) War Contingent Committee.*—The Secretary said that Mrs. A. W. Douet, who had been asked to be the representative of this Society on the Ladies (Provisional) War Contingent Committee, had accepted, and the Committee was at work.

War Gifts.—The Secretary reported that since the last Meeting of the Board, two further shipments of War Gifts had been made (as per list published in the Newspapers and in another part of this JOURNAL). He had also shipped Grapefruit, Oranges, Preserves and Magazines on board the Troop Ship for the use of the 1st. Jamaica War Contingent on the voyage over to the United Kingdom, as per list published.

The Secretary read acknowledgments received from the West India Committee of shipments of War Gifts made in July, August and September, the two former having been delayed owing to losses of mails at sea. All the fruit, etc., had arrived in good condition. He also submitted acknowledgment from Geo. Newnes, Ltd., of the first consignment of 28 bundles containing 1,438 walking sticks for the wounded soldiers.

The Secretary said he had also received a further batch of acknowledgments from the Fleet and from Hospitals, some of which he would publish.

Estimates.—The Estimates for the next financial year were submitted. The Secretary said the Office Committee had met the previous day and had gone over the Estimates and Statement of Accounts. The Instructors Committee had also met that morning and had gone over the Estimates for the Agricultural Instructors. Both these Committees reported that as they had reduced the Estimates for the current year to meet the reduced Grant, they would advise that the same Estimates stand for the next financial year. There might be some alterations in some of the allocations on the Instructors Estimates, as some changes might be made, but these would not affect the total. Agreed.

Sugar Making.—The Secretary said that some of the Branch Societies in districts where a large amount of wet sugar was made, the price of which was very low while estates sugar was high, had been asking him to find out if they could get a cheap Centrifugal machine, so that they could make a commercial sugar. After a good deal of enquiry he found that the cheapest Centrifugal would cost £173.

Mr. Craig said that the Secretary might make further enquiry because he knew of machine in use that cost a good deal less; the one he had in mind had not steam power but was driven with a sweep and mule or cattle power.

Instructors.—The Instructors Reports and Itineraries for the month of October were submitted, and referred to the Instructors Committee as usual.

New Members.—The following new members were elected:—

L. H. Allen, Porte Barrios, Guatemala.

A. H. Steele, Home Hotel, Grenada.

Robert Shepherd, (Jnr.), c/o Banana Co., Rio Grande, Nicaragua

L. C. Wilson, David, Chiriqui, Panama.

The Meeting adjourned until Thursday, 16th December, 1915, at 11.40 a.m.

WATER SUPPLY.

SOME NOTES ON WELL SINKING.

The writer has frequently had the question addressed to him: "At what depth can I strike water?" And it is for the purpose of giving a general reply thereto, in so far as it is possible to do so, that the present collection of notes on the subject are offered to the readers of the JOURNAL, some of whom, it may be presumed, are more or less interested in the answer.

In relation to the problem, in the first place, it may be taken as axiomatic that in all alluvial plains contiguous to the sea, the nearest point at which water may be expected in well sinking operations, is at sea level, or at a point so near thereto, that it may be considered as identical. The only modifying factor is the slope of the ground water, which varies from three to six feet per mile, and therefore the height above sea level at which water may be struck is in ratio to the lineal distance from the sea front. As for example in the Vere or Liguanea Plains, which consist for the most part of alluvial deposits in a boring undertaken, say one mile from the sea, one would expect to strike ground water, or the first spring, at a point 3—6 feet above sea level; although, on the other hand, each succeeding bed of water bearing sand or gravel, penetrated, almost invariably, results in the water level in the shaft or boring being raised and the volume of supply correspondingly increased.

The Plain of the Liguanea is formed almost entirely of alluvial deposits, in places, of undetermined depth. Under the lower part of Kingston, e.g., below North Street, they are at least 600 feet deep, but in the region above Torrington, and as far North as Barbican, they overlie a bed of sandstone, and vary in thickness from 200 to 300 feet. Contrary to what might be expected, the alluvium does not extend to Port Royal and the Palisadoes, as was evidenced by a boring made in the former place in 1894-5, which was carried 400 feet below sea level through coral and limestone in a highly disintegrated form.

The sandstone above referred to, which for the sake of convenience I designate the "Barbican sandstone" is overlaid by a bed of red clay, and seems to me to tilt up to the north of the city. This deduction is based on the following data:—

(a) In all wells north of lower Race Course, the normal water level is uniformly so much higher than sea level, that one is forced to the conclusion that the hydraulic slope in the ground water is checked at that point. Wells carried out in the section below that line, only show a maximum hydraulic gradient of about 5 feet per mile, whereas in a boring made at Quebec Lands in 1891 at a point 150 feet above sea level, and one mile in lineal distance therefrom, water was reached at 140'.

(b) At Alpha Cottage at a point 130' above sea level water is obtained at 100 feet.

(c) At Hagley Park, 170 feet above sea level, water was reached at 134 feet.

(d) In Antrim Pen near Camp, water is obtained at 80 feet above sea level.

(e) At Lyndhurst, north-west of Camp, a 6 inch boring was carried down to 200 feet, the location being 198 above sea level, water

was found rising to sea level. From that point a 3' boring was carried down to 420 feet, the Barbican sandstone being tapped at 256.6' when the water level was raised to a point 158 feet from the surface or 40 feet above sea level.

This sandstone bed, unfortunately, has never been explored beyond a depth of 164 feet, but that it is an excellent water bearing stratum, and of fairly extensive area, admits of no reasonable doubt. As it probably overlies the yellow limestone (eocene) formations on which the white limestone rock of the Long Mountain is superimposed, it offers great possibilities for water supply. Of course, it is impossible on the geological evidence to estimate the thickness of the Barbican sandstone—it might be anything from 1000-2000 feet but it would not be reasonable to expect that the head of water contained in it is greater than that already demonstrated in the boring above referred to, i.e., 40 feet above sea level. If therefore, as is assumed, the Barbican sandstone overlies the yellow clay, a boring for an artesian supply would be a hopeless quest. As Sawkins states in his report on the Geological Survey published in 1869: "If the search were made below that horizon it might be continued through the 1,500 feet of sand, shale and pebbles of the conglomerate group without success."

The alluvium of the Liguanea Plain consists of conformable beds of sand, gravel and clay, in regular succession, but of varying thickness. Very rarely do the clay beds exceed 10 feet, the sand and gravel beds being from 2 to 7 feet in thickness; in the lower part of the Plain the gravel beds, from sea level downwards, are all water bearing, and the springs increase in volume of flow the lower the boring is carried. To illustrate, if a boring is carried to 100 feet below sea level, on the harbour front, the water rises to a point 3'-4' above mean sea level. This fact is illustrated by the following details showing stratification and the volume of water obtained from the first and the last spring tapped:—

Made ground.....	5	feet
Sea sand with comminuted shells.....	6	"
Clay.....	10	"
Sand and gravel (yield 1,000 gals. per hour).....	6	"
Brown clay.....	8	"
Quicksand.....	14	"
Coarse gravel.....	8	"
Clay.....	9	" 6 inches
Gravel.....	7	"
Red potter's clay.....	8	" 6 inches
Fine sand.....	8	"
Clay.....	2	"
Gravel bed (yielding 16,000 gals. per hour) tapped only to...	3	" 6 inches

102 feet

The water flowed over on to the surface gently from this spring, at which point the well was completed.

The following table will prove, if proof on such an obvious matter be needed, the folly of discontinuing well sinking operations immediately

the first spring is touched. As a rule these springs are only collections of surface water, and have no uniformity of supply, but respond with disconcerting suddenness to every seasonal change, and worst feature of all, when domestic water supplies are in question, they are almost invariably subject to organic contamination. It might be added that the data given below are not the result of deductions, but are figures obtained from actual experiments in the writer's operations; and apply only to the lower part of the Liguanea Plain.

The figures given under feet, represent the depth below sea level to which the boring was carried and the figures under gallons the quantity obtained by pumping tests:

Boring.	Feet Below Sea Level.	Gallons.
3 inch tube	0.	350
6 " "	-3	500
6 " "	-30	1000
6 " "	-50	1200
8 " "	-50	3000
8 " "	-60	5000
6 " "	-66	5000
6 " "	-97	16000

An inspection of the above figures will make it clear that it is not a paying proposition to stop well sinking operations immediately water is reached, which in many instances is only an example of "wrecking the ship for a ha'porth o' tar." It is within the writer's knowledge that many wells have been sunk costing considerable sums of money, yielding inadequate supply, or in other words the cost was incommensurate with the results obtained, when a further additional expenditure would have yielded results which would have more than justified the cost incurred.

The data already given as applying particularly to the Liguanea are borne out by similar results obtained in irrigation and other wells carried out in the district of Vere, where the ground water slope in the lower section is almost identical with that in the Liguanea. Another point of similarity with the upper part of the Liguanea Plain, is found in the district lying north of the limestone up-crop to the south of Parnassus and Halse Hall, where the ground water is found at an average height above sea level of between 120 and 130 feet. But there the similarity ceases. All the wells in that belt are found in a gravel bed overlying the "yellow clay," and any attempt to improve the supply by continued boring beyond that horizon would be, in Sawkin's words, "a hopeless quest." It might be considered, and reasonably, if facts to the contrary were not known, that all wells in the Denbigh, Parnassus and Halse Hall district owed their supply to the Rio Minho which runs through these properties. In point of fact, however, experiments have proved that this is not the case. As for example at Denbigh, although the irrigation shaft is in contiguity to the river, yet when, to use a local idiom, "the river is down," the ground water springs are not immediately affected. On one occasion when the river had been in medium flood for 48 hours, the difference between the level in the river and the level in the shaft, 250 feet away, was 2.35 feet, and this when the shaft had not been pumped for weeks previously. An almost similar difference was observable at Parnassus, demonstrating that the source of the ground

water in both cases was remote. and that the river is not the immediate source of supply. As would naturally be expected, however, the springs in the irrigation shafts at both the properties referred to, respond quickly to seasonal influences. Three or four inches of rain will have an immediate effect on the yield within a few days, while the effect of the river even in flood is not felt for weeks. In seasons of normal rainfall irrigation shafts of suitable dimensions in that district can be depended on to yield 400 cubic yards of water per hour, falling to 180 cubic yards in times of severe drought.

W. KIRKPATRICK,

CORN MEAL.

MILLING OF INDIAN CORN.

We have had numerous enquiries as to how the Cornmeal of Commerce is manufactured and we are glad to publish the following information:—

The flour made from Indian corn or Maize is known in this country as cornmeal. There are many different methods of preparing it. The simplest, and one of the most prevalent until within a few years, consisted in grinding the kernels between stones and using the whole meal, coarsely sifted, thus produced. Immense quantities of Indian cornmeal prepared in this way are still used throughout all parts of the country, especially in the Southern States. It is evident that an Indian cornmeal prepared in this way would have nearly the same composition as the kernels from which it is prepared. A finer grade of Indian cornflour is produced by grinding as above indicated and bolting to remove a large portion of the bran.

The flour thus produced differs only from that first described in having a smaller content of fibre and mineral matters, due to the removal of all or a portion of the bran by bolting. On account of the high percentage of oil in the germ of Indian corn, and by reason of its hygroscopic character, the flour thus prepared is apt to become rancid or moldy. To prevent this change and also to secure a more palatable grade of flour, the modern improved processes of grinding and preparing Indian corn have been introduced. Following is the description of the process of preparing the flour from Indian corn as practised by one of the largest mills in this country.

The Indian corn is passed through a machine called a degerminator, which breaks the corn and removes the germ, but does not separate it. The separation is made by means of bolting cloths and currents of air. After the germ and hull are removed, the corn is ground between iron rolls properly corrugated. The meal is again submitted to the process of bolting and purifications by currents of air, and the refined product is the granular meal. The offal consists of the hull, germ, floury particles, and some of the flinty portion of the corn which is lost by the process not being sufficiently perfect to remove it and include it in the granular meal. The offal thus removed constitutes from 30 to 35 per cent of the weight of the corn, depending upon the conditions of the grain. Artificial heat is used in the manufacture of corn meal, which insures better results, and the meal will keep longer. This granular meal is not in favour in the Southern States. They prefer a soft meal made in the old way.

Aside from the method of manufacture, there are two distinct grades of Indian cornmeal found in the markets of the country, and these are distinguished by their color. There are two leading varieties of Indian corn in the United States distinguished by color, viz., the white and the yellow. The white corn makes a flour of a colour and texture which in some instances is said to be quite like those of flour made from wheat. On the other hand, the yellow corn makes a flour of a rich yellow color, which is highly prized in some quarters on account of imparting its color to the bread made therefrom. When prepared in the same way there is probably but little difference in the nutritive value and palatableness of these two varieties.

* * * * *

Our own red corn makes a meal with a deep rich colour, and as it contains *all* the germ of the corn, it is very nutritious, much more than the shop cornmeal, but it does not keep long. There is however no necessity for keeping, as it can be made any day as required, or at any rate, at short intervals. Every householder should be equipped with a corn mill, a small one, which can grind a quart of fine meal within 5 minutes only costs 20s.

* * * * *

There is as much difference between corn meal made at home in flavour and nutrition and beneficial qualities to the human frame as there is between the white bolted flour imported and the whole wheaten flour. We do not talk from theory as we have been long interested in dietetics and have never been afraid to take the trouble to experiment. Home made corn meal, however, must always be sifted through a fine sieve to get out most of the coarser particles which comprise the husk. Thus although the mills we recommend can grind fine as dust in one operation, we prefer to put the corn through twice: once coarse then sieve; then put the coarse particles in the mill, grind and sieve again. There is a great saving on making one's own cornmeal when home grown corn is used--which does not cost more than 1d. per quart to produce; as the labour in a small household does not count. The corn meal, therefore, cost 1d., or say, if corn had to be bought, 1½d. per quart.

:O:

PIGS.

We have asked for experiences of small settlers in different branches of agriculture. Here is an experience in Pig Rearing by a man who has made money in a small way in pigs. It is not to be taken that we agree in all the points. Indeed we entirely differ from the practice of allowing the animal to wallow in its own mud. Thousands of experiences here and elsewhere show that this is a disease engendering practice. Where an animal is fattening, however, it is fat and gone to the butcher before anything happens to it. Still we believe in clean mud.

PIG REARING.

(*By Joseph Barrett, Belvedere, Portland, Buff Bay P.O.*)

I have been rearing pigs for the past 25 years, and I am not afraid to spend money for a good pig. My pigs are fed three times a day. They get heavy food in the morning and light food in the evening. Hog slips form good food especially in the evenings. Feeding troughs must be perfectly clean. Pigs need water to wash and they prefer

clean water. Give clean water also to drink. Poland China pigs are very good; though they take more to feed them, yet they give quicker and better returns than common pigs. I sold an 18 months' pig for £5 and a 12 months' pig for £3. A growing stake kept in the sty is essential for pigs to scratch. It must be free from knots. Ripe and green banana and cocoe head (the two latter boiled) and corn soaked in boiling water are very good foods. A sow that has young pigs should not be fed with pot water from boiled banana, as it counteracts the flow of milk. Pigs don't need much salt in food. Potato slips also prevent a good flow of milk. Corn, roasted or parched, with water on to soak it, given as food along with the water helps wonderfully in the production of milk. Sows in pig ought not to be fed on Trya Cocoe until after pigs have been born, as it causes miscarriage. Sows put to Boar in December, give spring pigs. Pigs can be weaned in 8 weeks. Sows to give 2 litters per annum. Pigs born in the Fall never turn out nice in this district. I like to purchase pigs of different breeds and not a pair of same breed. Change the pen of pigs occasionally. A good breed of pigs is more docile than common pigs. Put shoats out at 9, 12 or 18 months. Turn pigs at 6 weeks and cut tail. I recently sold a pig 5½ months old for 50/- and one 4 months for 90/-. For Hog fever give a drench of brown soap lather and broomweed pulled up by the roots and juiced, a ½ pint bottle for grown up pig. This causes it to vomit and cures. If pig refuses food and blows short and coughs, give 1 tablespoon castor oil and 3 drops jeyes, also get red brick powdered and sprinkle over food. For hog cholera, give strong coffee dregs and boiled logwood heart. Pig rearing is a very good industry. I admit I am still a novice to some of the points connected with it. I wish I had more money to devote an adequate amount to the Industry.

MORE REMARKS ON THE PIG.

(By J. A. Ogilvie being address given before the Porus Branch Society, Porus, September 6th, 1915. Concluded from August Journal.)

When a styed pig becomes irritable and costive, walking about in an uneasy manner, turning over his food with his snout and refusing to eat as much as usual, he is commonly said to be "cloyed." (Note that in Indigestion he lies down and grunts as if in pain, refusing all food, while wind continually passes from him.) This "cloyed" condition is nothing more than what the "Vets" style "plethora," that is, owing to the lack of exercise and abundance of rich food, there is a formation of superfluous blood and fat. The remedy for this condition is to lower the quantity and quality of the food at once, and to let him out of the sty for a run, or better yet call in the butcher and sell him.

If you cannot get rid of him and he has to be kept in the sty, then give him not less than five tablespoonsful of castor oil in his slops, followed by a teaspoonful of salt-petre which can be sprinkled over his food, being first finely powdered or added to his drinking water. His supply of food must, of course, be considerably lessened, and it should be constantly remembered that pigs in a plethoric state are peculiarly liable to apoplexy and disorders of the blood.

It sometimes happens that a sow drops a fine litter of young pigs, but they do not thrive, and die off one by one during the first two

or three weeks of life. Other causes being absent, you may be sure that the sow has been eating some rotten or mouldy food which has completely spoilt the quality of her milk.

Change the sow's food at once and give her a mild dose of castor oil. Then obtain four ounces of each powdered gentian and powdered chalk from the druggist, mix them together, and sprinkle a tablespoonful of the mixture over her food at every meal until it is finished. If these remedies are not obtainable, our old friend, Baking Soda—a threepence worth from the Chinaman—will be found to answer the purpose almost as well. I remember using a box of tooth powder on one occasion some years ago and it acted like a charm, many tooth powders being largely composed of chalk. On pens, where white lime and milk are usually available, a good remedy should be lime water, half a cup full in a quart or so of milk, twice a day. A little charcoal and fine salt may be given every day or two, but above all see that the sow's food is fresh, pure and wholesome.

Pigs do not like cold weather, and I have always observed that when the temperature falls towards Christmas they huddle together, at nights and give vent to their discomfort by loud squeals. Unless highly and regularly fed they are never in the best of condition between November and March, because a portion of the food is used up to make heat. I have been told that it does not pay to fatten pigs in real cold countries during the winter.

Pigs are very healthy animals in Jamaica, and in dealing with them the simplest remedies will be found the best. Beyond a little mange, easily overcome by jeyes or kerosine oil, pigs that run about the commons are seldom in any way sick or ailing. Styed animals are more liable to disease. Some people assert that pigs suffer from malaria which causes an enlargement of the spleen as in human beings but I have never noticed this condition. Possibly when that book by a local expert comes along all these little points will be dealt with.

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GOVERNMENT STOCK FARM AT HOPE.

SECOND AUCTION SALE, FEBRUARY 16TH, 1916.

(By P. W. Murray, Headmaster Farm School.)

For the second time in the history of the Government Stock Farm the public will have the opportunity of obtaining at popular prices imported and native bred animals, which are to be put up at public auction on February 16th, 1916.

At our last and first sale held on February 18th, 1914, twenty-one bulls were sold at prices which were considered to be satisfactory both to the public and the Farm. In one instance a native cow fostering a pure bred Red Poll Bull calf, was sold for a price in the neighbourhood of £15. The owner, I am told, now values the bull at £100, and is extremely well pleased with his purchase.

Since the last sale the efforts of the Farm have been mainly directed to the rearing of heifers, while the public has shown a good deal of enterprise in the rearing of bull calves on native cows.

The Farm since its inception in 1910 has sold over 70 bulls to cattle breeders in the island, and it is hoped that a marked improvement in the qualities of native cows may soon become evident from this distribution of bulls,

The value of a pure bred animal as a sire is generally admitted; first in himself the sire of pure lineage possesses qualities superior to those found in ordinary stock and second being bred along stated lines for generations, his characteristics are fixed, and he invariably impresses his progeny with the leading attributes of his breed. In consequence the truer bred the sire the more quickly will a herd be bred up in any direction either for beef, milk or both.

At this our second sale, the Farm is putting up at auction at some sacrifice of its immediate interest, 38 lots of pedigree and selected bulls, cows and heifers representing some of the best strains of dairy and general utility cattle at the Farm, also a pair of 15 hands brown geldings by 'Water Jacket' broken to saddle and draft.

Five bulls are offered consisting of 3 stud bulls, and two young bulls sired by an imported Guernsey bull.

The imported Red Poll Bull "Royal Bey" has been over four years in the island and may be regarded as thoroughly acclimatised and a proved sire. He has been used in moderation and is now in his prime for stud purposes. The Red Poll is, without doubt, invaluable both for beef and milk production. One of the best cows at Hope weighed, before calving 1,334 lbs. and yielded 15 quarts milk per diem containing 4% of milk fat.

The best grown of the bulls reared in Jamaica weighed 1,054 lbs. at 21 months. His mother produces a maximum of 13½ quarts of milk in 24 hours. Experience in Trinidad showed that of all the English breeds of cattle tested at the Government Farm there, the Red Poll produced the best results when crossed on cattle with Indian blood.

The value of this breed is so well known to experienced and successful penkeepers that we have on our books at the Farm orders from penkeepers for 12 unborn Red Poll Bull calves to be sold at a week old at £3 each, and for 5 half bred bulls at £20 each from a leading breeder of beef stock.

Besides the pure bred imported bull "Royal Bey" there will also be put up three pedigree Red Poll heifers bred in England by Mr. K. M. Clark and registered in the Jamaica Herd Book. These heifers are thoroughly acclimatised, having been born at Hope and reared in the open pastures. They are all in calf to "Sudbourn Crowfoot" a pedigree Red Poll bull of great value and have been tuberculin tested. Four half-bred Red Poll heifers, daughters of the Red Poll bull "Royal Bey" will also be sold. Their dams are all milkers of the Jersey, Ayrshire, Devon and South Devon strain and should prove to be valuable animals for dairy purposes.

Of the pure bred Jerseys there will be offered the Jersey bull "Golden Lad" who is a remarkable reproduction of his sire "Lord Rothschild," a winner of 1st prize for yearling bulls in the island of Jersey and is undoubtedly the handsomest and most typical Jersey bull in Jamaica to-day (see photo in catalogue—Lot 12).

Three imported pedigree Jersey cows all typical of this excellent breed of dairy cattle are also for sale. These animals are all valuable ones and are only offered to the public to satisfy a continual and persistent demand from some of the leading dairymen of the island. They are all about five years old, regular breeders, in calf and thoroughly acclimatised to our conditions in Jamaica.

There is a natural aversion to the Jersey by penkeepers; these animals being small and not easily fattened after their time of usefulness as milkers is ended. A touch of Indian blood will overcome this difficulty. Our bull "Experiment," which is for sale, is half Jersey and 1-8 Indian weighing on his first birthday 736 lbs., and at 23 months 1,086 lbs., and now scales over 1,600 lbs. after being used on 40 cows in the year. This bull has already sired the most promising of dairy progeny and can be recommended with confidence as a first class producer of hardy and productive dairy cattle suitable for general conditions in Jamaica. A heifer similarly bred weighed 1,000 at 2 years old on grass only. Dairymen who desire to increase the size of their heifers, especially those of a Jersey strain, would be well advised to consider the qualities of this truly excellent bull; as we have found such a cross retains all the desirable qualities of the Jersey with added size improved constitution, short coat and absence of ticks.

Lots 14 and 15 consisting of two Guernsey bulls sired by an imported Guernsey bull "Glenwoods Hazel's Pride," represent the first attempt of the Farm in breeding animals of this famous dairy breed. Unfortunately their sire died after being six months in the island from tick fever and we have been unable to continue this work. These bulls are both young, one being one year and six months, and the other one year and ten months old. "Duchess Pride," which is out of a Canadian Grade Guernsey cow is a particularly fine specimen of the breed. Either of these bulls should be most useful for dairy purposes.

A selection of 11 dairy cows trained to milk 'without calf' is offered. These cows are principally of the Jersey strain and should make a valuable addition to any dairy herd or be suitable for private family use. They are all quiet, easily handled, trained to milk without their calves and tuberculin tested. Their average, by our records which are most carefully kept, is from 6 to 9 quarts of milk per day when fresh, with an annual milk value of from £16 to £22 per year.

Along with these, four native cows to milk with calf are to be sold, two of them having been bred by Sir Sydney Olivier giving from 4 to 6 quarts while rearing the calf. Any one of this lot should prove a useful family cow.

Of the heifers besides the Red Poll, two Shorthorn and three Zebu-Jersey all of good breeding and of fine promise are to be offered. These animals present a fine opportunity to the dairyman or private owner who has grass at his disposal as in a year or two his investment will more than be made good. All these heifers are tuberculin tested and thoroughly acclimatised to our conditions in Jamaica.

Full details of the animals are published in the Sale Catalogue obtainable from Mr. M. P. DaCosta, Harbour Street, Kingston, or from the Director of Agriculture, Hope. This catalogue contains full details of the record of each animal including pedigree, milk yield, weight, etc., with photographs of the bulls and regulations governing the sale. Seven hundred and fifty copies of this catalogue have been issued from the Government Printing Office for distribution to persons interested.

Anyone desiring to see the animals or the records may do so by appointment. We shall be pleased to furnish information about any animal that may be desired, and in the event of our advice being required in a selection the Department will be willing to assist the public.

The Department is also willing to receive bids by post from intending purchasers unable to attend the sale. These bids will be handled confidentially by the Director of Agriculture who will appoint representatives for each bidder at the sale. If for example, a client were to send a cheque for £100 to the Director asking him to bid for the Red Poll bull "Royal Bey" up to this price, should the bids for Royal Bey rise to £70 only our client would get the bull for £30 less than his limit. A gentleman from Westmoreland adopted this method at our last sale and he got two of our best bulls at most reasonable prices.

Where bids by letters are of equal sums they take precedence in order of the date of registration in the office. The sale is fixed for the 16th of February next, at 11 o'clock. Mr. DaCosta of Kingston, has been authorised by His Excellency to conduct it.

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SHELTER FOR STOCK.

The actual experiences of the past few months has fully confirmed all we have been writing about, advising and warning for several years past, and that is the necessity for having shelter for stock and more especially small stock and poultry, and the consequences of not having such shelters. What are the consequences? Through the heavy weather in August and September, the entire loss in some cases of pigs, goats, poultry and donkeys—these animals especially—and where deaths have not occurred, loss of condition.

With poultry the consequences are always obvious and serious. We have so often written that while fowls prefer to roost on trees and this is healthy where a few simple precautions are taken *re* cleanliness; still it does not pay in the long run not to have a shelter—a simple fowl house, nothing elaborate—where the fowls should be compelled, if necessary, to roost. Fancy the battering fowls roosting on trees must have got in the continuous rain storms of August and September. What we foretold has exactly occurred. Pullets that were almost ready to lay, hens that were through the moult and looking to lay were thrown back months; and eggs have been scarcer and dearer from September to December than usual at this period, albeit there is always a shortage at this particular time of the year.

Then again pigs and goats tethered out or pigs only kept in pens without any shelter, such as a covering on one corner would give died by the scores.

Surely it is more economical to have a paddock with a shed where all the beasts of a small settler could be brought in when a storm was on than to have the poor beasts standing, exposed to the wind and lashing rain, shivering and shrinking, not able to get a bite for several days and nights. Some sort of feeding could always be found for beasts standing in a paddock under a shed, to tide them over. And then besides the better condition of the beasts, a pile of manure is available where they have been standing, again worth some money in value. But the great thing is the value of shelter for beasts from continuous stormy weather when it occurs,

COFFEE.

(Report on Diseased Coffee Root from Mile Gully District, made to the Director of Agriculture.)

The sample was forwarded by Agricultural Instructor Powell on the 5th. from the cultivation of Mr. Matthew Carnegie. The specimen was from a young tree about 4 years old; the attack is confined to one part of the cultivation where coffee plants were killed some months ago and are still being lost. These plants are near the decaying roots of a large tree cut down some years ago. Black flat strands of a fungus were spreading over the bark while just beneath the latter was a dense black layer from which black rhizomorphs with a white centre had penetrated the living bark and the wood. No fruiting bodies of the fungus were present. It is identical with a fungus found in coffee roots from the Borobridge district (report 20 March, 1914) and resembles a species of *Rosellinea* causing a black root disease of coffee citrus, etc., in Dominica. The attack usually passes over from the roots of diseased wild trees and may have spread to the coffee from the roots of the large trees mentioned by Mr. Powell.

Treatment.—As the disease will spread from diseased roots to those of adjoining coffee trees it will be necessary to isolate the affected patch by means of a trench 18 inches deep throwing the soil inwards; dry brushwood should be put into the trench and fired. Dig out and burn the diseased trees, dig up the soil round them to expose diseased roots to the air and light and treat the soil with recently burnt lime. The decaying roots of the large tree stump should be got out and destroyed. After a few weeks plant some other crop (not coffee, cocoa nor citrus).

(Sgd.) S. F. ASHBY,
Microbiologist.

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BANANA FIGS.

We are one of those who obstinately believe that Banana Figs are a good commercial product for Jamaica. We have reason for our faith. No part of the world grows bananas more systematically than we do in Jamaica, the trade is organised and bar storms, good fruit is available and can be arranged for in suitable districts; most of our fruit has a fine flavour, which Central America fruit does not possess. We have mastered the art of making figs that look well, eat well, and keep well. Early objections were that dried or evaporated bananas only tasted well—certainly did not look attractive or appetising, and fermented readily.

Before the war a fair trade was being done with Germany and connections were being made elsewhere. The trouble has not been markets; but that we could not supply large enough orders quickly enough. Now the storm of August has cut off supplies of fruit until about next April, that is the failing of a small country—trade is easily disorganised.

In order to make our banana figs better known we conceived the idea of sending a ton as a War Gift to our sailors and soldiers. Mr. J. F. Thompson of Good Hope to whom we mentioned this idea, casually, at once urged that the idea should be carried out and gave us a cheque for £20 to do it.

Mr. J. W. Pattinson, who has a banana fig factory at Gayle and one at Cave Valley supplied the figs under market value, and we had them packed here in this office in nice carton boxes, labelled in our standard colour—green—each carton box holding nearly 1 lb., and then wrapped in a thin tissue paper which protected the box but which could be read through. His Excellency the Governor interested himself in this matter and wrote the War Office and Admiralty to ensure that the figs would receive a fair trial. Here are some acknowledgments we have received through the Secretary of the West India Committee:—

Mr. G. H. Mayhew, of the Honourable Artillery Company, wrote from "somewhere in France":—"I am pleased to inform you that the banana figs that the Jamaica Agricultural Society so kindly sent us were in excellent condition, and were very much liked by the men of the battalion. I am instructed by the Officer Commanding to tender you our grateful thanks."

Mr. P. Webber, wrote:—"Banana figs are very much appreciated by the men of the London Irish Rifles, and I beg to tender thanks for same on their behalf."

Lieut.-Col. P. C. Carr, of the 11th Battalion, Royal Fusiliers, wrote:—"I am pleased to be afforded an opportunity of acknowledging with thanks the receipt of banana figs for the men of my battalion so kindly forwarded from Jamaica. These were highly appreciated, as was also the patriotic spirit prompting the gift."

Rear-Admiral Francis Miller, of H.M.S. *Cyclops*, said:—"May I say how very much the gift of banana figs from Jamaica has been appreciated by the officers and men? They desire to express their thanks to the donors for the most acceptable form of present, and for the kind thoughts which prompted its despatch. The fruit arrived in excellent condition."

CITRUS CANKER IN PLANTS.

The growers of Oranges and Grape Fruit in Florida are now fighting the worst trouble they have ever had in their groves, and this is Citrus Canker. This trouble came from Japan and when it first appeared it could have been stamped out for a few pounds, but it was not. Some growers said that it was not of any account, and that those who were alarming themselves over its spread were too fussy. To-day it is present in every grove in Florida, not to be eradicated, and is costing the State from £20,000 to £100,000 every year, according to the season and the severity of the plague.

We read in an Agricultural paper that Citrus Canker is considered to be a very subtle and terrible plant disease. It was first noticed in Florida 2 years ago, and it was then thought to be a new form of Citrus Scab. Research at the Florida Experiment Station soon showed that it was a disease of the greatest malignity attacking the leaves, fruit and wood of all Citrus trees and a very brief experience of it showed that it could be met only by heroic methods. Of a fungus nature, it apparently came from Japan with some imported Citrus stock.

At first growers were advised to combat the canker by spraying with Bordeaux, and to cut out and burn infected parts of trees. Then it was discovered that citrus-canker spores actually grew in Bordeaux mixture, and that the most careful methods of dealing with plant troubles known up to that time did more to spread the pest than to check it, so radical new tactics had to be adopted. Now a Florida citrus-canker crew ready for a day's labor looks, in size and equipment, somewhat like a European artillery command. And its work is almost as spectacular.

The pest first appeared in certain nurseries in Southern Florida. Every one of those nurseries has been put under strict quarantine, so no citrus stock can leave it, and every shipment of citrus trees made to groves in Florida for several years back is being followed up by inspectors as detectives follow a gang of criminals. Practically all the infectious found throughout the state have been traced directly to such nursery shipments, and, though still in stages that permit stamping out, the disease is already so widely sown that it must affect every Florida citrus section if unchecked.

Canker inspectors go over suspected groves looking for the pest. They wear white linen suits which are sterilized in bichloride of mercury after each day's work is done, and they also dip their hands in a sterilizing solution after handling infected trees. Virtually every leaf on every tree in a suspected grove is examined for the telltale canker spots, though the inspectors avoid touching the trees as much as possible. Every infected tree is marked and guarded, nobody being permitted to go near it, and when the inspectors have finished they take off their suits, sterilize their hands, and leave the grove.

Then the burning crew enters. Every infected tree is sprayed with oil, set on fire, and burned completely as it stands. No attempt is made to treat it, because no remedy for citrus canker has yet been found. Absolute destruction of the infected tree without any sort of handling by the workers is the sole remedy.

Under the present Florida laws the canker crews have authority to quarantine diseased nurseries, but none whatever to enter private groves and destroy trees. Here comes in a remarkable phase of the fight: Owners are not only permitting the destruction of their trees, but are furnishing the money to carry on the work.

At this writing, nearly 1,000,000 trees in suspected sections have been examined, leaf by leaf. One hundred thousand young nursery trees and a smaller number of bearing trees have been burned. Chiefly the small trees are now infected, and it is believed that the pest will be exterminated in these. When a grove is found free of the pest it is passed without further inspection, but if it is in a district where there are diseased trees regular weekly inspections follow until the canker disappears.

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Many of the pests that are being imported nowadays can be handled with the same success that is being attained in the citrus-canker fight. A very good illustration is found in California's white-fly experience. This citrus pest was carried to the Pacific Coast on nursery stock from Florida in 1907, and appeared in three sections. Inspectors were sent to stamp it out by stripping every leaf from every citrus tree in those sections, as well as to defoliate numerous native trees that act as hosts for white fly. In a little more than one year the pest was obliterated, and it has never gained foothold there since.

But back of the science and the field work must be a backing of public opinion, based upon education. It might seem that growers would easily consent to having their trees stripped of leaves, in comparison with the drastic measure of burning them, as is now being done in Florida. Yet that California campaign was carried on in the face of considerable opposition.

This shows clearly that public opinion, formed by education and good management, must be brought over to the right side in such a battle.

Yet there are people who object to the comparatively simple restrictions and requirements of the Protection from Diseases of Plants Law here, which is only a little stringent as regards Panama Disease of Bananas, and child's play compared with what is necessary in Florida regarding Citrus Canker.

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Small orange and grapefruit are of no value. The size can be increased by manuring and relieving the trees of some of the young fruit. If a 6d. to 1/ worth of labour on a tree will ensure saleable fruit it is worth manuring trees and thinning the young fruit.

The manuring should be done whenever the crop is off, or in cases where the old crop is allowed to remain long on the trees, in the hope of a market occurring in February and March, the manuring should be done not later than January, better in December.

COURSE OF LECTURES.

A special course of lectures and demonstrations on agricultural subjects has been arranged between the Agricultural Society and the Department of Agriculture, primarily for the benefit of the Agricultural Instructors, but the Course will be open to the public, and pen-keepers and planters are cordially invited to attend. These lectures will be given at the Farm School, Hope, from January 17 to 23 inclusive.

SYLLABUS.

Monday, 17th January.—

8 to 10 a.m.—The manuring of crops in Jamaica. Hon. H. H. Cousins, M.A., F.C.S.

2 to 4 p.m.—Cocoa. Wm. Cradwick, Esq.

Tuesday, 18th January.—

8 to 10 a.m.—Cocoa diseases. S. F. Ashby, Esq., B.Sc.

2 to 4 p.m.—Coffee. E. Arnett, Esq.

Wednesday, 19th January.—

8 to 10 a.m.—Coconut Diseases. S. F. Ashby, Esq., B.Sc.

2 to 4 p.m.—Cocoanuts. L. A. Wates, Esq.

Thursday, 20th January.—

8 to 10 a.m.—Lecture: Tuberculosis in domestic animals and birds and its relation to the diseases in man. Demonstration: Shoeing of the horse. (a) The preparation of the foot. (b) The adjustment of the shoe. G. O. Rushie Gray, Esq., B.Sc., M.R.C.V.S.

2 to 4 p.m.—No lecture.

(Half Yearly General Meeting of the Agricultural Society 11.40 to 2. Instructors compare 4 to 6.)

Friday, 21st January.—

8 to 10 a.m.—Entomology in Jamaica. A. H. Ritchie, Esq.

2 to 4 p.m.—Sugar—cultivation and manufacture among small settlers. T. Powell, Esq.

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SEASONABLE HINTS.

VEGETABLES.—For vegetable growing the soil can hardly be too rich, and especially is this the case for Cabbages. The largest Cabbages we have seen here have been grown round old cane trash heaps. It is a mistake, however, to add fresh horse manure to a garden, as while vegetables are greedy feeders, they are not coarse feeders—except Cabbages. The land intended for a vegetable garden should be manured well ahead and turned over in the rough. We write this again because so many have written us that they have been simply overwhelmed with pests of one kind or another, and we do not know of anything that will bring more pests around, than the use of fresh horse manure. Yet it is a most common practice in spite of all that is written, to start the garden all in one week, by laying a lot of coarse horse bedding mixed with manure through the garden, digging it in, planting the vegetable seeds, immediately, and applying a top dressing of the same stuff. It is almost an impossibility to expect vegetables to grow with cultivation like this. Ordinary horse manure we do not consider a good dressing for garden vegetables at all, unless it is very old and rotted. Cow manure is much better; goat and sheep manure are suitable if well mixed with the earth; fowl manure is too strong unless it is mixed with at least 20 parts of soil, first, or applied sparingly to the garden direct, and well mixed in. Old rotted cane trash is quite suitable dug in a month ahead.

The best soil for the garden is one that was heavily mulched last year; for another crop preferably peas or beans; this year the mulch has been incorporated with the soil as manure and is in a very fine state. This does not encourage pests. It is no use using coarse strawy manure for a vegetable garden as this keeps the soil too open. It is absolutely necessary to have the soil of the garden in a fine state first, and then *firmed*, so that it may *not* be loose or open.

There are many pests to garden vegetables and they cannot all be dealt with alike. Practically every day we receive letters and callers on the subject of some pest eating down garden vegetables just after they had started growth. Now there are two different kinds of common pests. One pest cuts through the stems of certain young vegetables, Tomatoes and Cabbages for instance—about an inch above the soil—almost a clean cut. This is the cut worm and it cannot be killed by dusting on to the vegetable a powder such as we supply, but which will kill the second batch of pests such as caterpillars, slugs and snails which eat the leaves. These last can be killed by dusting Slug Shot on the plants. *Cut worms*, however, are of a different nature; they are little grey caterpillars which lurk in heaps of trash or in the earth at the roots of the vegetables and come out at night. The nature of the damage they do is unmistakable. They can be killed by making a bait of one part of Paris Green (which must be used with caution as it is chiefly composed of arsenic) and 50 parts of bran, middlings, cornmeal, or cheap flour; mix this into balls with some wet sugar, and place about the field between the plants; the cut worms will find the bait and get poisoned. Paris Green can also be used to dust over the plants so long as it is mixed with at least 20 to 40 parts its weight of fine white lime. Some vegetables are more tender than others and require the Paris Green to have a larger admixture of whitemime. This mixture comes cheaper than Slug Shot, but of course a good many prefer to get a ready-made mixture rather than having the trouble of getting the white lime and mixing a certain proportion with the Paris Green. Slug Shot and the Paris Green-whitemime mixture should be dusted thinly on the plants in the evening, and this should be done once a week. Baits for cut worms should be laid once a week or whenever they are seen to be at work. Constant watchfulness and care are necessary. (See page 430 November Journal for more exact instructions.)

We find Vaporite (6d. all) dusted round the plants in the earth useful against cut worms, ants and any pests which lurk in the soil.

CORN CROP.—In most years since 1906, the growing of good corn crops generally throughout the Island has been frustrated through severe drought happening in some of the best corn growing districts. The first time since the year mentioned that we have had real good crops all over, was last season, but even then part of the crop was spoiled through the August wind and rain storm. Since August we have had nothing but rain, rain, and so heavy and continuous that the corn planted in August and September has been to a large extent badly damaged. We do not therefore expect anything like a good crop of corn from January to March. A good deal of late planting has taken place right up to the end of October, but that won't help much to make up supplies. We advise that wherever a district is suitable for the January planting, corn should be planted then and also in February. The time to prepare for the plantings in January and February is now. On the heavier soils forking should be done two months ahead of planting, and even on the red soils this would do good also.

CORN.—From experiments carefully noted the weak stalks in a corn field produce less than half the vigorous stalks. It is usual now, owing to pests reducing the stand of young plants, to plant five grains instead of three in a hole, as replanting is hardly ever a success, because when some plants have got the start, those planted later in the same or near holes seldom grow well. But when it happens that four or five stalks grow, and have got a good start it will pay to go through the field and chop out the weaker stalks, even if only one or two are left. Where it happens on exceptionally good soil and under unusually good corn growing conditions, that there are three or four vigorous stalks, let them stand. But if no weak stalks are ever allowed to grow and produce cobs, and then the best of these are selected for seed, this in a few seasons would help to produce a more vigorous breed of corn.

STOCK NOTES.

DEATH OF MULE.—"We received the following letter from the Secretary of a Braach Society." A member had a cart mule, not kept in stable. Little corn fed. It took sick on a Monday and died Saturday. When it took sick she walked as if she had been strained, keeping the neck stiff and straight to the front, and ears erect.

Treatment:—Camphorated Spirit of Wine, one grain Oil of Rignum and Turpentine mixed together were used as ointment for the whole body. The body was also patted with hot water.

First Drench:—Oil of Juniper, Glander Salt and a pint Strong Ale. No improvement, then

Second Drench:—Radway's R. Relief and Water. She then died.

Please say what might have been the trouble and treatment you deem fit in such cases. When she died all the ointment was seen to be just oozing out the body."

We referred this to the Government Veterinary Consultant who replied:—

"It is impossible to come to any conclusion as to the existence of any particular disease on such a description of symptoms. It is possible that the mule was suffering from Tetanus (Lock-Jaw), but correspondent fails to state how the animal fed, etc. If this was the disease all the symptoms described would have been present.

Treatment.—In cases of Tetanus vaccinate with Antitetanic serum. Laxative food, e.g., bran mash, and keep the animals in quietude. If the disease is due to a wound, expose this to its depth and cauterize."

It will be seen from the letter that while there is a full description of the treatment administered, there is a very scant description of symptoms. The treatment given seems to us very heroic and we are not surprised that after Drench No. 2, the beast died. We think a repetition of an article that appeared in this JOURNAL some years ago on Drenching is required, but we have found an article written perhaps in a more impressive way.

DANGERS OF DRENCHING.—We have already had an article on the danger of drenching by the ordinary methods in use (JOURNAL for September, 1911). The average man does not understand the physiology of an animal, but he can find out whether what we write is true by trying to drink himself in the same way—by holding the nose and jaw and the head back. But no, the human takes his doses of medicine in the form of pills, powders or spoonfuls of liquid.

The following is from an old copy of the South Australian Agricultural Journal:—
"Yet in the year of grace, 1914, no sooner does the horse get the gripes than someone is sent galloping off for a drench, and probably for a drenching bit, for that will ensure the drench going down; yes, but where? Probably into the lungs. Why? Because the horse's nose is above his mouth and his windpipe below his gullet, and when he drinks his head is down, and his windpipe is protected by a trapdoor (the epiglottis), so that the liquid glides over it into the gullet down into the stomach. But when the patient sufferer falls into the hands of administering angels with a drench, up goes his head, the muscles of his throat are stretched so that the trapdoor is forced open, and being shaped like a lid of a jug, involuntarily catches the drench and tips it down the windpipe. And still the nose is used as a funnel, despite the fact that it is arranged to allow air, not liquid, to get into the windpipe; and if liquid is substituted for air it too, has to go the wrong way after intensely irritating a very delicate organ; and when a horse coughs he is bound to take the drench down his windpipe. Now-a-days the active principles of all useful drugs can be obtained in concentrated form, and, mixed with molasses or pollard, can be put on the tongue or teeth, or tastelessly mixed with the food or drink, or inhaled in vapour form without harm. "Killed by drenching" will then not be the primary cause of many deaths of stock, even though the owner does not understand why his beast died after having so much good medicine."

SOAKED CORN.—We have before written of the benefit to horses and mules of a change of diet. Hard corn every day becomes tiresome to a beast and food eaten because of hunger, never does so much good as a food that is relished. Now in this country it is difficult to ring the changes in food. Corn is the commonly available food. Oats and wheat bran are mostly far too expensive, as we do not grow oats or wheat. We found that if a salt pork or beef barrel was got from a shop, and the corn soaked in it, for not less than 24 hours, the beasts enjoyed this soaked corn with the salty flavour, and improved. This makes a nice change although the diet is still corn. Later we found that rice bran from Westmoreland was ever so much cheaper than wheat bran and nearly as nutritious, and could be given mixed with corn, saving half the corn and making the beasts masticate the corn better. Still later we found that a small proportion of coconut meal added to the ration of travelling ponies, was eagerly taken and served to improve the beasts. The only drawback to the coconut meal is that at present, it requires to be imported, although it comes cheaper than Linseed Meal and Cotton seed meal, while indirectly its use helps the coconut industry. But it should be made here!

Suppose a horse gets a daily ration 4 quarts of hard corn. Give as a change 2 quarts soaked corn, 2 quarts rice bran and 1 pint Coconut Meal. The horse is better fed at slightly less cost.

TANNING HIDES.—Making leather is a task for experienced tanners and such persons should do the work to obtain the best results. An old recipe is as follows: Mix quicklime with water, allow it to settle and pour off the clear liquid. Soak the skins in this lime water for about 10 days, or until the hair can be easily removed;

then soak and wash until all the lime is taken out. Mix 4 oz. alum and 8 oz. salt in 4 gal. water, and soak the skins for two or three days in this liquid. Take them out and hang up to drain. When half dry, rub and work the leather till it becomes dry.

* * * * *

LAMPAS IN HORSES.—This trouble occurs for the greater part in young horses while cutting their teeth, and sometimes when beasts are shifted from a soft bite, i.e., green succulent grass, to hard tough wire grass. During this period swelling of the ridges of the palate above and behind the incisor teeth is quite common. There are slight febrile symptoms, especially when the bridle teeth or tushes begin to show themselves in males; the parts become very large, which prevents the animal from eating his food.

No severe measures are necessary such as burning or tearing the palate. Simply rub with salt, or apply a wash of alum water. Give the animal soft food such as soaked corn, instead of hard corn; and where rice bran is available this can also be fed with the soaked corn. Also give cut grass and Spanish Needle instead of hard grazing.

—:O:—

POULTRY NOTES.

CAPONIZING.—The system of caponizing ought to be more generally practiced. If for no other cause the cockerels caponized grow to a much larger size than those not so treated, and the meat is much improved; not only so but male birds which could not be kept together without danger of constant conflict will live in peace and amity. These reasons ought to warrant the adoption of caponizing. The pain suffered by a bird is infinitesimal as compared with the result of single fight, and the benefit altogether out-weighs any objection on this score. Capons thrive better and lay on flesh more rapidly being not so restless in temperament. On the grounds of increased profit I would strongly recommend that all male birds intended for table should be capanized and thus the cockerels will realize more for the breeder than they otherwise would. The operation gives but momentary pain when rightly performed.

* * * * *

HOW TO CAPONIZE.—The best birds to operate upon are chickens which have not yet started to crow, and when about 3 to 4 months old is the right age. They must be kept without food for 24 hours or more before being operated upon so as to get the intestines empty and keep them from resting on the testicles. A good light (bright sunshine) should be chosen to operate in and the full light allowed to shine in the chicken's side when opened. Lay the bird on its side on the bottom of a barrel or table, tie the bird's legs and wings or get someone to assist by holding the bird. Pluck off the small feathers from the hip bone to the first rib (counting from the hip bone) then wet with cold water, this will serve to keep the feathers out the operator's way, and it is also claimed that cold water will numb the sensations of the fowl so that it does not appear to feel the operator's knife. Stick the knife between the first and second rib from the hip bone and cut downwards to the end of the rib. If need be turn the knife and cut nearly up to the backbone. Now put in the spreaders, (one of the instruments used for separating the ribs), split the lining that covers the bowels, the upper testicle will then be exposed and should be grasped with the grippers and given a turn so as to separate it from its attachment, then pull the testicle out. Turn the bird on the other side and go over the same process to remove the other testicle. With experience both testicles can be removed from one side, but it is necessary to be careful not to rupture the large vein under the testicles, and also to get out the whole of the latter as they will grow back if any portion is left.

The birds may be allowed to be free without the incision being sown up, but for a few days they should not be allowed to fly up to roost. Birds may in this way be caponized without loss of more than two and a half to three per cent. Large breeds such as, Wyandottes, Plymouth, Orpingtons and Indian Game, when caponized young and well fed until 8 to 10 months old will weigh 10 to 15 lbs. each, and the meat will be found to be of the tenderest and most succulent description.

The chief dangers found in practice with the system of caponizing is the tearing of the veins near the testicles which result in the bird bleeding to death, and the losing of the testicles among the intestines after separation, the latter may cause inflammation and death. These seldom happen except through want of care or inexperience. It is best for the novice to make his first experiment on a dead chicken so as to learn exactly the position and place to cut and the removing of the testicles. For the operation firmness and confidence are necessary and can be best obtained by actual experience.

M. RENNIE.

Falmouth.

EGG LAYING COMPETITIONS.—We have followed nearly all the Egg Laying Competitions which have been held throughout the world. These were first commenced in England as summer competition, but as eggs laid in winter are more valuable than those laid in summer, the first all year competitions were held in Australia where some remarkable results in laying were obtained. A few years ago these competitions were also started in the United States, where the success of English breeders proved an eye opener to poultry breeders there. A winner in many competitions was Mr. Tom Barron who has a poultry farm in the north of Lancashire, England, and now his strain of White Leghorns and White Wyandottes are advertised in all poultry papers in the United States. In spite of selling many hundreds of his strain of fowls and probably thousands of eggs for hatching, he has again won this year's Egg Laying Competition at Storrs Agricultural College, Connecticut, with a pen of White Wyandottes; these birds laid 2,072 eggs; his White Leghorns were third with 2,001 eggs; a pen of Rhode Island Reds belonging to Hillview Poultry Farm being second with 2,039 eggs. In the whole competition, White Wyandottes produced most eggs, averaging 165 eggs per bird; White Leghorns were second with an average of 155.8 eggs, Plymouth Rocks averaging 146.3 eggs and all other breeds 125.8. The general average for all the competing birds was 175.8.

The difference in ability of hens to lay is well illustrated by the contrast between the poorest pen which laid only 569 eggs and the best pen which laid 2,072 eggs.

It is generally accepted that pullets do not make as good stock birds as hens, in their second, third, or even fourth year; and we have usually worked along these lines. Whether this gives better birds than those hatched from eggs laid by pullets, i.e., birds laying their first season, we have never absolutely proved, but there is, at any rate one great advantage in not using pullets, and that is, in the second year we can always have the selection of the best as stock birds, i.e. proved birds. One is therefore not setting or selling eggs at random.

Owing to the high price of oats all during this year, we did not use them for feeding stock birds, and we have not one bird this year to compare with the birds we had as stock last year; this year's birds have not the size nor bone. The hens laid quite as well without oats, but the chickens reared without that grain are not of the same class, and the few pullets we must keep as stock birds for next year are not of the same class—to look at as the hens of this year. They will probably lay quite as well but we also like to keep up size. The principal feeding had to be corn all during the year.

FEEDING CORN.—Where corn and little else has to be fed it should always be cracked in a mill first; in this way it goes further and is easier to digest, and where young chickens are kept running among older fowls they can pick this, while whole corn kills many of indigestion.

It is good also to vary one feed a day where no other soft food is fed, with soaked corn (See Stock Notes.)

COMMENTS.

HALF YEARLY GENERAL MEETING.—This Meeting will be held as usual on the third Thursday of January, the 20th of that month: All Branch Societies can send one delegate whose name should be sent to the Secretary at least two weeks ahead so that the Certificate authorizing him to travel the double journey by rail for single fare may be sent in time. All matters for the Agenda should be sent in two weeks ahead also.

COCOA DRYERS.—We beg to call attention to the advertisement in this JOURNAL of economical cocoa dryers made by Messrs. Wm. McKinnon & Co., Ltd., Spring Garden Iron Works, Aberdeen, Scotland. The agent for these dryers is Mr. Eric G. Anderson, Engineer Hayes P.O. (Vere).

LIMES.—The article on Limes published in November JOURNAL will be continued in a later issue.

CORN MILLS.—The corn mill that we supply for £5 we find grinds corn and cob together pretty well, and we find that beasts like this mixture as soon as they get accustomed to it. It is certainly a great saving not only in the feeding value but in the shelling of the corn. Larger and more powerful mills, however, are required to do this on a larger scale. We sound a note of warning, however, regarding this make of mill. It is meant for a house mill to grind say up to a bushel of corn into cornmeal at a time, but not to be kept grinding all day as the effort would be too much for hand power. We have, however, the same mill fitted with a fly wheel so that it can be used with steam power if necessary.

* * * * *

The percentage of cob to grain in a corn cob is about 18%. * We took 4 cobs recently and tested them. The seed corn from the centre of the cob weighed 27 ozs., the grains from the tips and the butt weighed 6 ozs., and the cores weighed 6 ozs. These were good cobs.

————:O:————

FOOD CROPS.—Keep up the planting of plenty of crops for food. This is the more necessary now that the supply of bananas is cut off to a large extent, and this fruit will not be available abundantly until next June.

————:O:————

IRISH POTATOES.—This is a quick crop and should be largely planted in January, February and March. It is no use planting however, unless the soil is very rich with manure and is also in a very fine state of tillage.

HOOK WORM.—With reference to our paragraph in October JOURNAL that a strong infusion of Tansy had been found to be useful in eradicating Hook Worm, a medical man writes that a decoction of Bitterwood is better, but the plant called locally Wormweed (*chenopodium ambrosioides*) promises to be the best remedy of all; better even than Thymol. It would be most useful to have a common native remedy. Wormweed is commonly known and used for ordinary intestinal worms.

————:O:————

PEAS AND BEANS.—Have been very scarce since the storm weather of August and September. Cowpeas and Black Eye Peas could hardly be got for seed to plant, and Red Beans also were wanted for planting far in excess of supply. We do not expect these crops to be very plentiful until next August.

————:O:————

SEASONS AND CROPS.—While wind and rain caused loss in August and September and flood rains again in some parts during November, on the whole the seasons have been such that crops look well for next year. Bumper crops of sugar are assured; bananas are coming along so fast that some of those who figured they would not have any until April to June will have some from February on. Some places have continued supplies for shipping all along, St. Catherine and St. Thomas especially.

Cocoa trees got badly whipped in the storm but have made wonderful recoveries, and next year's results should at least be fair; and the price keeps up.

Coffee has not borne a large crop generally, though heavy in particular spots, but the trees are in fine condition for a large crop next year. The price, too, is better than was expected, and has inspired hope in small growers.

Ginger is a contrary crop; it promised exceedingly well, better than for years, but since the rain storms of August and September, the crop will only turn out *heavy* in a few favoured spots that escaped the numerous landslides, washes and floods. The price is pretty good, and with not the best prospects for a good crop, may improve.

Annotto is bearing well and the price is good. Those who have it should stick to it,—not the crop but their trees.

Logwood made a sudden jump up. The Imperial Government want 6,000 tons and until they are served—at least that is how we take it—have prohibited export, except to the United Kingdom.

:O:

MOSQUITOES.—In districts where mosquitoes are plentiful, their numbers can be largely reduced by every one taking precautions not to have any still or stagnant water uncovered or if that is not possible as in the case of a pond or tank, take care to have some of the little fish called Ticky-tickies or Bungas in the pond or tank. One old condensed milk, salmon or jam tin flung out, lying mouth up and catching a half pint of water can breed enough mosquitoes to annoy a whole household. Yet we see such things lying in the back yards of intelligent householders. No empty tins, broken bottles, old buckets or anything that can hold water should be left about as rubbish.

:O:

RATS.—Keep up effort to keep these pests down; they are hard to get entirely rid of permanently. Many times we have cleared out rats from houses and yards until for two or three weeks we never heard or saw trace of them. Then they appeared again; probably a house-keeping couple or several, came along from neighbours, looking for a place to settle; found plenty of room and plenty to eat and settled. Soon young rats would be about and we had to continue effort again. The worst possible fellow ever to clear out is an old buck rat who has lost supremacy in his usual haunts and settles elsewhere with a young doe. He defies cats, dogs, traps and poisons.

* * * * *

THE VALUE OF OWLS.—It is difficult enough to keep rats down in the house, but in the field it is still more difficult unless one's neighbours are also making the same effort. In rat destruction, co-operation is absolutely necessary and that is why our Branch Societies should keep at the subject.

We hope at our Half Yearly General Meeting in January to show the small locally made traps, bamboo or withe traps, cheap to make and which are used very effectively in a few districts yet which are apparently entirely unknown in most places.

We again want to bring it home to our readers that the best of all rat destroyers is the Owl, and instead of boys and others being allowed to scare this valuable bird away when it appears round the dwelling, it should be looked upon as a precious assistant and encouraged. One pair of owls when they have 5 or 6 young ones in the nest will kill more rats and mice than a dozen hungry cats would in a night

There would be less destruction by field mice to the corn planted, if a pair of owls was hunting up and down the rows, their wings noiseless, their eyes keen, their pounce certain, their appetites unlimited.

Take care of, and encourage Owls.

:O:

EXPORTS—The year for export closes at 31st December. At the beginning of that month our results for the 11 months are not at all discouraging: on the contrary quantities and values are with the exception of fruit very good indeed. Only our chief exports bananas shows up poor. Now if we can only get shipping and our fine seasons continue—the prognostication of weather experts is that we are in for a cycle of rainy years—we shall get through next year very well. So far we have not been too badly off for shipping; a great deal better than some other parts of the Empire.

WAR GIFTS.

The following are a few more of the acknowledgments we received per the Secretary of the West India Committee, London.

It will be noticed that some of the hospitals contain 1,000 and more wounded men. Let us continue our efforts to supply them with fruit. Nothing is more welcome to the sick and wounded than our Oranges and Grapefruit.

Naval Store Office, Aberdeen, N.B.—

On behalf of the Vegetable Products Committee, I beg to thank you very much for your generous gift of grapefruit for the Grand Fleet. The boxes arrived some days ago, add will be shipped to-morrow, the slight delay being caused by unavoidable circumstances.

I trust that they will reach the Grand Fleet in good condition, and be appreciated by the sailors.

Vegetables and fruit are continually sent to us from all parts of the Kingdom and the Empire, with extraordinary generosity; but I think that no gifts are of finer quality or more welcome than those which come from Jamaica.

From the Commanding Officer, His Majesty's Ship Dreadnought, c/o G.P.O., London.—

Dated 6th October, 1915.—

The gift of grapefruit which you have been kind enough to send for the men of the Grand Fleet, has been received in this Ship.

It has been distributed among the men and greatly appreciated by them.

On their behalf, permit me to thank you.

Third Scottish General Hospital, R.A.M.C. (T.), Stobhill, Glasgow, 23rd Sept., 1915.—

I have pleasure in acknowledging receipt of one box of oranges and one box of grapefruit gifted by the Jamaica Agricultural Society, reference Number 122.

In reply to your query, the accommodation of the 3rd Scottish General Hospital is one thousand patients.

Administrator Southern General Hospital.—

21st September, 1915.—

Thank you very much for the box of grapefruit and box of oranges which have been received for the wounded soldiers in this Hospital from the Jamaica Agricultural Society.

The fruit arrived in good condition except for half the box of oranges.

Our Hospital accommodates 3,300 patients.

First Western General Hospital, 7th October, 1915.—

Your circular letter Ref. 54, advising the despatch of one box oranges and one box grapefruit duly received, also the fruit.

Will you please convey to the Jamaica Agricultural Society the appreciation of the sick and wounded in this Hospital.

The Hospital accommodates 500 patients.

Seamen's Hospital, Greenwich, 11th October, 1915.—

We have received two cases of oranges from you on behalf of the Jamaica Agricultural Society. We have a large number of wounded Naval Ratings in our wards now, men from the Dardanelles. No less than 60 cases of Dysentery and some of Typhoid also. Your gift is much appreciated. Very many thanks to the Jamaica Agricultural Society and to you.

The Royal Infirmary, Sunderland, September 29th, 1915.—

I have the pleasure to inform you that the box of grapefruit which has been sent as a present from the Jamaica Agricultural Society for the sick and wounded soldiers and sailors in this Infirmary was received yesterday, on the same day that a convoy of 100 wounded arrived from the great battle on Saturday and Sunday last.

Will you please accept and convey to the donors and your Committee our grateful acknowledgements for their acceptable gift.

In reply to your enquiry we are giving accommodation for 164 sick and wounded soldiers and sailors, and I can assure you that our brave fellows will be delighted to have any further gifts of fruit which you may be pleased to send them.

Seamen's Hospital, Greenwich, 1st September, 1915.—

Your further kind gift of a Cask of Lime Juice (30 gallons) has come to hand and I hasten to convey to you an expression of warm thanks which I trust you will pass on to the Jamaica Agricultural Society. Please assure the Society how very much their gift will be appreciated by the sick and wounded here. We have accommodation for 300 patients in normal times but another 100 can be taken in by putting up extra beds. We are now expecting a third convoy of wounded Naval Ratings from the Dardanelles and therefore you will understand how valuable the present from the West Indies is to us. We thank you very much.

First London General Hospital, St. Gabriel's College, Camberwell, S.E., August 17, 1915.

I am requested by the Officer-in-charge to thank you most heartily for the kind gift of fruit sent to us through you by the Jamaica Agricultural Society, and trust you will convey to them the thanks of the patients of this Hospital who greatly appreciate the fruit, and the kind spirit in which it is given.

This Hospital now contains 1,000 beds.

The Prince of Wales' General Hospital, Tottenham, N., August 25th, 1915.—

I beg to acknowledge the receipt of 2 boxes of oranges, and 1 box of grapefruit, also the cask of 28 gallons of honey which has now come to hand. I should be glad if you will kindly convey to all the members of the Jamaica Agricultural Society, our most heartfelt thanks for these very much valued presents. The men themselves appreciate the fact that their needs are so kindly thought of by their fellow country-men in the distant parts of the Empire.

University College Hospital, London W.C., August 14th, 1915.—

I beg to acknowledge the receipt of a box of oranges which you have forwarded to this Hospital for the sick and wounded soldiers on behalf of the Jamaica Agricultural Society. Will you please convey to the Society an expression of our most grateful thanks for this kind gift which is much appreciated by the men.

In reply to your enquiry, this Hospital accommodate 225 wounded soldiers.

Fourth London General Hospital, R.A.M.C.T., Denmark Hill, S.E., 14th August, 1915.—

I write to thank you very much for the two boxes of oranges. They will be much appreciated by the wounded soldiers and sailors. I trust you will convey to the Jamaica Agricultural Society our thanks for their kind gifts of fruit which are most acceptable. We have about 900 wounded men in this Hospital.

Second Southern General Hospital, Bristol, August 21st., 1915.—

I have to acknowledge with many thanks the receipt of four boxes of oranges for the use of the wounded and sick soldiers in this Hospital.

Please convey my cordial thanks to the Jamaica Agricultural Society for their generous gift which will be greatly appreciated by the men. This Base Hospital when full accommodates 1,040 (one thousand and forty) patients.

Third Western General Hospital, R.A.M.C., Cardiff, 22nd August, 1915.—

I am in receipt of your letter dated August 20th instant, in which you notify me that 2 boxes of grape fruit have been forwarded to this Hospital for distribution among the patients.

Please accept most grateful thanks for your kind gift, and I have no hesitation in assuring you that they will be greatly appreciated by our patients.

This hospital has at present accommodation for 590 patients, and in the course of a few weeks will be able to accommodate over 1,000 patients.

Will you please be good enough to convey grateful thanks to the Jamaica Agricultural Society for the gift mentioned.

Royal Naval Hospital, Plymouth, 15th August, 1915.—

I am desired by the Surgeon-General to acknowledge the receipt of your communication dated 10th instant., Ref. No. 191, and to inform you that the box of oranges sent by the Jamaica Agricultural Society, for the sick and wounded patients in this Establishment, arrived yesterday.

The oranges have been distributed amongst the various wards, and the patients are deeply grateful to the Jamaica Agricultural Society, for the kindness shown.

The accommodation at this Establishment for sick and wounded patients is 1,000 in number.

No. 2 Eastern General Hospital, Dyke Road, Brighton, 24th August, 1915.—

I beg to thank you for very generous gift of grapefruit from the Jamaica Agricultural Society for the use of the wounded soldiers in this Hospital, and I can assure you these will be very much appreciated by the men.

The number of beds fully equipped for patients in this Hospital is 1,020.

East Suffolk and Ipswich Hospital, 18th August, 1915.—

The receipt of a box of oranges from the Jamaica Agricultural Society to the sick and wounded in this Hospital was reported to my Board at its meeting to-day. I was directed to convey the Board's very best thanks to you and through you to that Society for the gift, which is much appreciated.

Our accommodation has recently been extended and we now have beds for 240 wounded here. Most of the cases we receive are of a very serious nature.

Manchester Royal Infirmary, Manchester, 21st September, 1915.—

I beg to acknowledge with many thanks the receipt of one box of grapefruit for our wounded soldiers, from the Jamaica Agricultural Society.

The fruit will be greatly appreciated by the soldiers, and I shall be glad if you will convey their grateful thanks to the Jamaica Agricultural Society for this kind gift. Presents of this nature are always exceedingly welcome.

This Hospital accommodates 308 wounded soldiers.

Royal Southern Hospital, Liverpool, 25th August, 1915.—

I have to acknowledge, with very best thanks, the receipt in good condition of a box containing 60lbs. of grapefruit marmalade.

Will you please convey my Committee's grateful thanks to the Jamaica Agricultural Society for their thoughtful gift to the sick and wounded soldiers and sailor at this Hospital, which you may be sure will be greatly enjoyed.

WAR GIFTS FROM JAMAICA.

WAR GIFTS SHIPPED DURING THE FORTNIGHT ENDING OCTOBER 11TH, 1915.

A.—GIFTS FOR GENERAL DISTRIBUTION AMONG HOSPITALS.

Donor.	Address.	Quantity.	Kind.
The St. James' Women's War Committee (per Mrs. D. Mills)	Montego Bay	1 tin (10 lbs.)	Guava Jelly
		1 tin (10 lbs.)	Pine Jam
		1 tin (10 lbs.)	Plum Jelly
		1 tin (10 lbs.)	Grapefruit Marmalade
Mrs. A. D. C. Levy	Bog Walk	2 tins (20 lbs.)	Orange Marmalade
		1 tin (35 lbs.)	Guava Jelly
Mrs. W. W. Wynne,	Mandeville	14 boxes	Oranges
		3 "	Grapefruit
		2 "	Lemons
		8 "	Oranges
Hon. J. R. Williams	Bethel Town	1 "	Grapefruit
Sir John Pringle	Cape Clear Clonmel	20 "	Grapefruit

E. D. Kinkead	Kingston	40 boxes	Oranges
R. E. Lewis	Mandeville	20 "	Oranges
F. J. Delapenha	Mandeville	20 "	Oranges
J. H. McPhail	Bog Walk	36 "	Lemons
Mrs. Cooper	Giddy Hall	1 case Cigarettes (contg. six boxes, value about 15/-)	

B.—GIFTS ADDRESSED TO SPECIAL MILITARY HOSPITALS, THE BELGIANS, ETC.
 Donor & Address. Gift. Hospital, Etc.

Miss I. Coleman, Christiana	1 case Clothing (about 60 pieces)	The Hon. Sec. Belgian Relief Funds, 32 Goswell Rd., London, E.C.
Mrs. Cummins, 87 Duke St., Kingston	1 case Clothing (about 60 pieces, also a parcel of Dolls & Doll's Clothes, etc.)	ditto
The St. James' Women's War Committee, per Mrs. D. Mills, Montego Bay	1 case Clothing (about 114 pieces)	ditto
Mrs. Robt. Craig, Chapelton	5 boxes Grape Fruit 4 boxes Oranges 1 box Limes	The Military Hospital, Galashiels, Scotland.
The People of the Bamboo Tabernacle, St. Ann, (per Mrs. Jas. Johnston, Brown's Town)	2,000 Cigarettes	The Netley Hospital, Netley, Hampshire.
A. C. L. Martin, Cross Keys	1 bag Pimento (asked for by Mr. Aspinall for experiment)	

THIS LIST WAS OMITTED FROM THE NOVEMBER JOURNAL.

The following War Gifts have been contributed and despatched during the fortnight ending November 22nd., 1915.

1.—FOR GENERAL DISTRIBUTION AMONG HOSPITALS.

Donor & Address.	A. Preserves. Quantity.	Kind.
*Miss I. Branze, Spaldings	2 tins (20 lbs.)	Guava Jelly
Mrs. A. A. Lewis, Yallahs	3 tins (30 lbs.)	"
Mrs. & the Misses Soutar, St. Andrew	1 tin (10 lbs.)	"
Mrs. A. B. Lowe, Adelphi	1 tin (10 lbs.)	Marmalade
B. Citrus Fruit.		
A. A. Green, Mocho	8 boxes	Oranges
	1 "	Grapefruit
	1 "	Limes
Col. Moulton-Barrett, Moneague	10 "	Oranges
Rev. H. B. Wolcott, Richmond	8 "	Grapefruit
Hon. Geo. McGrath, Ewarton	25 "	Oranges
Mrs. S. Moxsy, Chapelton	12 "	Oranges

II. FOR SPECIAL HOSPITALS, ETC.

A. Preserves, Cigarettes, Etc.

Donor & Address.	Gift.	Destination.
Mrs. A. A. Lewis, Yallahs	Guava Jelly (2 tins, 20 lbs)	Folkestone Hospital
Miss Isa Soutar, St. Andrew	Guava Jelly (4 tins, 40 lbs)	French Wounded.
Mrs. & the Misses Soutar, St. Andrew	Guava Jelly (5 tins, 50 lbs)	
St. Michael's Girls' Club, Kingston	Miscellaneous Garments (60 pieces)	Secty. Willesden National Relief Fund Committee, Municipal Offices, Dyne Rd., Kilburn, Ldn., N.W.

Per Mrs. Jas. Johnston,
Brown's Town
The People of the Brown's Cigarettes, (10,000)
Town Tabernacle, St. Ann

The War Office (for distribution to Base Hospitals, Stretcher-bearers, Burial parties, etc.)

Per Mrs. Jas. Johnston,
Brown's Town,
The People of the St. Jean do
D'Acre Tabernacle, St. Ann

The Admiralty (for distribution to Hospital ships).

B. Citrus Fruit.

Mrs. H. E. Crum Ewing, Mandeville	4 boxes Oranges	3rd Genl. Hospital, Stobhill, Glasgow.
Sir John Fringle, Clonmel	{ 15 boxes Oranges	ditto
	{ 10 boxes Grapefruit	
Robt. Craig, Chapelton	{ 15 boxes Oranges	3rd Genl. Hospital, Stobhill, Glasgow.
	{ 5 boxes Grapefruit	ditto
Inspector T. Alexander, Mandeville	{ 10 boxes Oranges	
	{ 5 boxes Oranges	Any Hospital for the Wounded Blind.
Hon. J. R. Williams, Bethel Town	{ 15 boxes Oranges	War Hospital, Lansdown Crescent, Bath.
	{ 5 boxes Grapefruit	
Mrs. W. W. Wynne, Mandeville	{ 2 boxes Oranges	S. General Hospital.
	{ 2 boxes Oranges	S. General Hospital, Town Hall, Oxford.
	{ 2 boxes Oranges	Morant Hospital, Broken hurst, Hants.
	{ 9 boxes Oranges	Hospitals in Brokenhurst and The New Forest.
	{ 3 boxes Grapefruit	

III. FOR THE JAMAICA WAR CONTINGENT.

A. Preserves, Etc.

Mrs. E. A. Clarke, Half Way Tree.	Guava Jelly (2 tins, 20 lbs.)
Miss K. E. Mercier, Kingston	Guava Jelly (12 tins, 12 lbs.)
The Women's War Committee St. James.	{ Guava Jelly (2 tins, 22 lbs.)
	{ Guava Jam (2 tins, 20 lbs.)
	{ Marmalade (1 tin, 10 lbs.)
Mrs. J. H. Levy, Brown's Town	{ do (8 lbs.)
	{ Guava Dolce (5 lbs.)
	{ Guava Jelly (6 lbs.)
Mrs. H. E. Fray, Milk River	Cassava Cakes (13 doz., 80 lbs.)

B. Citrus Fruit.

W. H. Coke, Mandeville	10 boxes Oranges
	6 boxes Grapefruit.
	8 boxes Lemons.
Miss Levy, Mandeville	10 boxes Oranges
S. A. Hendriks, Porus	20 boxes Oranges
F. J. Delapenha, Williamsfield	22 boxes Oranges
C. R. Isaacs, Shooter's Hill	27 boxes Oranges

IV. WALKING STICKS.

Donor & Address.	Quantity.	Destination.
George Silly, Chalk Sound, Caicos	1 bundle (about 50 sticks)	For H.M. Military Hos- pital, Luton, England.

Hon. H. Cork, Port Antonio	1 bundle (20 sticks)
E. W. Muirhead, Mandeville	8 bundles (790 sticks)
Rio Minho Branch, Clarendon	1 bundle (65 sticks)
Mocho & Brixton Hill Branch, Clarendon.	2 bundles (147 sticks)
J. K. Hanna, Balaclava	2 bundles (54 sticks)
A. A. Palmer, Albert Town	2 crates (50 sticks)
I. Wilmot Sharp, Duncans	1 crate (89 sticks)
Per J. H. Scott, Falmouth:	
Orange Valley, Trelawny	10 bundles (348 sticks)
A. M. Lewis Mandeville	1 bundle (12 sticks)
Mrs. Anna Maxwell, Myersville	1 bundle (50 sticks)
Wm. Plummer, Balaclava	2 bundles (32 sticks)
No Name	2 bundles (127 sticks)

Consigned to "Tit-Bits"
London.

Total 31 bundles
3 Crates—1,834 sticks.

N.B.—A good many of the sticks from some of these bundles had to be rejected as they had not crooked handles (which we are specially requested to send); were very much too thick, being more like logs of wood; were too long—and so unfit for shipment. We have likewise received several bundles which had to be rejected altogether for similar reasons.

We actually shipped 25 bundles containing 1,438 sticks (repacked from the above.)

Sticks for shipment should be about 3 feet long, have crooked handles, and be roughly dressed, though it is not necessary to have them polished. The names of the donors and the number of sticks in each bundle must also be plainly written on a tag attached to each bundle.

*List of contributors (which we have been asked to publish) to the fund started by Miss Isabel Branze, Spaldings, to provide materials for making Guava Jelly; acknowledgment for the last 2 tins of 6, which she has forwarded at different times, appears above:—

Mr. Junor, 4/; Mr. Lyn James, 2/; Mr. Moses, 1/; Mr. McCaulay, 1/; ; Mrs Meikle, 1/; Mr. J. A. Williams, 1/; Mr. J. Freckkleton, 1/; Mr. Maxwell, 1/; The Misses Grey, 1/; Miss Munro, 1/; Mr. Smith, 6d.; Mrs. Carpenter, 3d.; A Friend, 3d.; Mrs. Mary Green, 3d. Total, 15/3.

BRANCH NOTES.

GUY'S HILL (St. Ann.)—The regular monthly meeting was held on Thursday, 28th October, 1915. There were present, W. Cradwick, Esq., (Agricultural Instructor), twelve members and the Secretary. Among matters arising out of the minutes was a letter from Mr. Barclay, the Secretary of the Parent Society, informing the Branch that the men recommended as "Authorized Persons" have been duly appointed. There were three of them present at the meeting. The Secretary said that he had sent on the resolution, passed at the last meeting, re the present financial condition of the small settlers, but that no acknowledgement had been made of it. He was advised to write again. No sticks for the disabled soldiers had been actually brought in, but some were being prepared and further promises were made by some of the members. The Secretary said Mr. Barclay had promised to send some potato slips to Linstead, and Mr. Hay, the President kindly promised to get them up from the station. The Instructor advised that Mr. Barclay be communicated with directly if any more slips be required. Mr. Westmoreland moved that the Director of Public Works be written to and asked that some improvement be made to the road at the Guy's Hill and Gayle junction at the 25th mile post. Mr. Ayoub brought before the house a matter that has already been discussed—the pollution of the streams of water in the District; the Secretary was instructed to again write the Parochial Board on the subject, as also on the condition of the curve leading to Kellam River. Reports from "Authorized Persons": Mr. J. T. Lawrence reported that he attempted an arrest but the parties seemed to effect a compromise and prevented his going beyond an attempt. Mr. Martin said his name is still on the list of "Authorized Persons", though he has been a District Constable for some time now. The Secretary was instructed to inform Mr. Barclay of this. It was pressed on the "Authorized Person" present that they should report at every meeting of the Branch. The Instructor kindly promised to fetch some cacao seedlings and some cuttings of B. 208 canes from Hope Gardens on his next visit. Mr. W. Brodber

gave a very favourable report of the condition of cacao trees pruned some months ago by Mr. Gunter, the assistant Agricultural Instructor. The suggestion that one or two members be elected to select and read from the Agricultural JOURNAL at meetings any article that may strike them as being of special interest was heartily taken up, and Messrs. S. Martin and Wl. Irvine were chosen for that duty at November meeting. Discussion to follow their reading. The Instructor promised to attend in December when he intends to do some coffee pruning in the School Garden. He will also show the proper way to set out cacao seedlings. He is to demonstrate at Mr. W. Brodber's cultivation on the day of his visit at 9 o'clock, Thursday, 16th December.

W. E. WATSON, Secretary.

SAVANNA-LA-MAR, (Westmoreland.)—A meeting was held on the 29th October. There were present: Rev. A. I. Dell, in the Chair, five members and the Secretary. As arising out the minutes, it was unanimously resolved: "That the Agricultural Instructor be requested to make arrangements for the lecture on the benefits to be derived from being a member of a Branch Society, which he had arranged to deliver in April last, but owing to his being called away to Kingston and other unforeseen circumstances, could not be given. He will inform the Secretary as early as possible the date when he will give the address." The Secretary read a circular from the Secretary of the Parent Society *re* relaxing of rule with regard to journals. A letter was read from the Secretary of the Lethe Branch with copy of a resolution asking the co-operation of the Branch in the holding of an Agricultural conference at a centre and date to be fixed when the members of the Managing Committee of the Parent Society, the Agricultural Instructors and gentlemen of prominence in the Western Parishes be invited to attend and give addresses. The following resolution was adopted: Resolved that the Secretary of the Lethe Branch be informed that this Branch appreciates the desire to hold an annual Agricultural Convention in the manner outlined in the copy of the resolution transmitted with the Secretary's letter dated 20th September last and will co-operate in the manner suggested as soon as the details as to the expenses connected therewith are made known and the means of meeting same are satisfactorily arranged. The Rev. R. C. Young, M.A., was elected a Vice-President. The following was agreed upon. Resolved: That owing to the fact that all forms of amusement are being held annually and are well supported and as this Branch has not had a show since the Hurricane of 1912, that arrangements be made for the holding of an Agricultural Show on 1st August, 1916. The meeting adjourned until 26th November, at 3 p.m.

OSCAR M. SEATON, Secretary.

LAMB'S RIVER (Westmoreland.)—At a meeting held on the 5th November, there were 16 members and the Agricultural Instructor present. There was a discussion on the duties of "Authorized Persons," and it was decided that these "Authorized Persons" be specially invited to attend the meetings, and to give reports of the work they do as such, from time to time, and if they do not attend, then they shall be asked to resign their appointments. Letter from the Secretary of the Parent Society on arrowroot was read. He offered to pay 3d. per lb. delivered at the Railway Station. To this the meeting agreed, as this offer was better than that of last crop. Letter also from the Lethe Branch was read in which that Branch proposes an Agricultural Conference in the western part of the Island; but Mr. Briscoe advised the meeting that such a requisition is impracticable at this juncture. There was an open discussion on agriculture, as to what may be done to encourage the people in agriculture. The Secretary suggested that if it be possible to have periodical visits at the Montpelier Nursery by members of the surrounding Branches and others, then lectures and demonstrations might be given, in which may be seen the work carried on there from time to time, and these would have better effect than the Agricultural Instructor going to a meeting and lecturing on Cocoa, Banana, Cane, etc. Mr. Briscoe fell in with the suggestion, and promised to arrange for such a day at the Nursery. The date to be fixed later. In Mr. Briscoe's talk on cultivation, he strongly encouraged the upkeep of all crops, and discouraged the habit of working by "fits and starts." At the instance of the Secretary, it was decided to make a War Gift—in Arrowroot—2 barrels at least—the same to be sent through the Parent Society to two Military Hospitals in England. Each member of the Branch who grows arrowroot to give not less than 4lbs., and others the equivalent in cash to buy the necessary amount. It was decided that Mrs. Briscoe be asked to write a paper for the next meeting on the War. She will select the subject herself. The next meeting was fixed for the 17th December.

U. L. BROWN, Secretary.

CAMBRIDGE (St. James).—The November meeting was held on the 6th. Present: Messrs. Myers, (Pres.), the Secretary, the Treasurer, J. Briscoe, Esq., (Instructor), and 13 other members, besides a new member and 6 visitors. Messrs. H. C. Shekell and Thos. Virgo were elected new members. Mr. Briscoe informed the meeting that he had got all necessary books for the Penny Bank. The Secretary read a reply from the D.P.W. *re* resolution for Bridges in which he holds out no prospect of their being erected before the war closes. Notice was taken of the fact that our M.L.C. has not acknowledged receipt of two resolutions sent him. The resolution from Lethe Branch *re* a united annual Conference of Branches around was favourably entertained, and a resolution in its favour passed. A letter was read from Mr. Barclay showing that Mr. W. A. Reid's name was deleted from the list of A.P.'s as he has become a rural Constable. Mr. Reid tendered a letter to the same effect and thanked the Society for its kindness to him. He was heartily congratulated on his promotion. Mr. R. Kentish, A.P., tendered his report which showed that he did no duties in October; but that his presence in his district as an A.P. was a deterrent to praedial larceny. Mr. Samuel Henry of Bruce Hall was chosen as an A.P. in Mr. Reid's place. The recommendation of another A.P. in the remote districts of Catadupa, etc., is under consideration. Messrs. Briscoe and Myers were elected as trustees for the Penny Bank and Mr. H. A. Stephenson, Secretary. At the close of the meeting the Bank was started with pleasing results. R. M. ARNOLD, Secretary.

FAR ENOUGH (Clarendon).—The regular meeting was held at the Good Hope Schoolroom on Monday, the 8th November, 1915, at 4 o'clock p.m. They were present: John Horn, President, the Secretary, 12 other members, and 5 visitors. Correspondence was read from the Secretary of the Parent Society as regards the "Authorized Persons", monthly Journals to members and resolution to Surveyor General in *re* Crown lands and lumber. A letter was read from the Inspector General of Police relative to recommendations for appointment of Authorized Persons, and about Benjamin Thomas' nomination to be appointed as an Authorized Person. The President moved the following resolution which was seconded and carried:—"It having been brought to the notice of this Branch, that the practice of putting clay, stones, and other foreign substances at the bottom of tins of wet sugar is prevalent and increasing in various districts, thereby discouraging the large buyers to purchase: It is hereby resolved that the Parent Society be asked to take up the matter, and petition the Government to make this dishonest practice an indictable offence." The President reported that Dr. Strudwick, D.M.O., will give a lecture on Water, at our next meeting on the 1st December, and that the Revd. George Turner, President of the Croft's Hill Branch is expected to be present on the occasion. The President brought to the special notice of members, that a recruiting meeting will be held at Chapelon, on Saturday, the 20th November, 1915, at 12.30 p.m., when His Excellency the Governor, and General Blackden will be present, for the purpose of getting young men to enlist as soldiers, but they must be able to read and write a little, therefore he kindly requests all strong, healthy, able-bodied young men to attend that meeting, and have themselves enlisted as soldiers, for our Empire wants men and money, and that there is no line of demarkation now; men were fighting as brothers, shoulder to shoulder in the great cause. The meeting then adjourned to Wednesday, the first day of December, 1915.

J.C. ROBERTSON, Secretary.

VILLAGE—Sub-branch of Moneague (St. Ann).—The regular monthly meeting was held on the 9th November, when 9 members, 11 visitors, Mr. E. Arnett, the Agricultural Instructor, and Mr. J. E. E. Armstrong, Assistant Secretary of the Jamaica Agricultural Society, were present. The Instructor was asked to preside, and in his opening remarks, he expressed his regret for not being able to visit the branch before. He then pointed out that the cultivations in the locality could be better improved by a system of drainage. He explained the various uses of the operation and said we should drain to air the land and to collect water. He advised side-trenching. He encouraged a more healthy unity with the Moneague Branch with which we are affiliated, as the outcome would be better for both branches. As the walking sticks promised had not been got up, it was decided to make this a matter of paramount importance. The following resolution was agreed upon: "That seeing the roads of this and the adjoining districts are in so bad a condition, thus rendering much inconvenience to pedestrian traffic, be it resolved: that a petition from this Society be sent, through the Moneague Branch, to the Parochial Board requesting early improvements." Mr. Armstrong then gave a very encouraging talk. He encouraged careful reading of the JOURNALS and the putting into practice of the facts gathered therefrom. He said that more can be got from the soil than any other industry if the right brain be put to it. He insisted upon the sending

in of the monthly Branch Notes to be inserted when possible in the JOURNALS. A question on troubles with yams was asked the Instructor by a member, and it was decided to send a sample for examination. The Instructor said we should always send our troubles to him as he was glad to solve these. He would visit the holdings of members for demonstration work if they wished. Cordial thanks of votes were given both gentlemen. Before the meeting, Mr. Arnett gave a spraying demonstration, both for plants and animals, which was very highly appreciated.

GEO. J. JOHNSON, Secretary.

BRANDON HILL (St. Andrew.)—A meeting was held in the Govt. Schoolroom on the 9th November. The following were present:—Nine members, the Secretary and Mr. A. P. Hanson, Instructor. Owing to heavy rains, the meetings are not well attended. The officers for the establishing of a Penny Bank were elected. The members were informed that as a result of a resolution sent from this Branch to the Half-Yearly General Meeting, the Government are in favour of introducing legislation to enforce scales with "two faces." The Instructor addressing the meeting, emphasized that immediate steps should be taken and attention given to the planting of cocoa, coffee, orange, grapefruit, and other citrus fruits. He carefully outlined the methods of planting, and explained the reasons for his advice, especially at this important crisis. These fruit trees, if planted, and when the fruit is fit for sale, will be of great financial help to the owners. A crop of peas and sweet potatoes will also do its part as a means of sustenance. The Instructor also pointed out the wisdom of getting healthy seeds, and suckers. The method of trenching was also gone into, showing the kind best suited for the hilly districts in St. Andrew. The President moved a vote of thanks for the Instructor's useful address. The meeting adjourned for the third Saturday in December. CHARLES E. KELLY, Secretary.

WALDENSIA (Trelawny.)—Mr. Rennie, Asst. Instructor for Lower Trelawny, visited the Sherwood and Waldensia districts on the 11th and 12th inst. On the former date he gave a demonstration in the School Garden and showed how young cocoa trees should be cared, and a part of the next day was spent in the fields of the peasants. On the 12th inst., the regular monthly meeting of the Branch Society was held. In the absence of the President, the Chair was occupied by Mr. Thomas E. Chambers, V.P.; 17 members and several visitors were present. Mr. Rennie delivered a short address on the condition of the present European War and the necessity for the Island sending a Contingent to the Mother Country; after which an appeal was made to all present to render what help they could whether in giving fruits as Christmas gift for the soldiers, or in anything else. A large number of friends responded and made offers for fruit. Arrangements were next made for the putting up, etc. The subject of banana cultivation and corn planting was next dealt with. The Instructor showed the wisdom there would be if the small settlers would try to cultivate a small piece of China bananas always, which may come in as a kind of help when the storm has swept down all the Martinique trees. After another earnest appeal had been made by Mr. Rennie to the audience on corn planting in the district, the meeting adjourned. N. A. LIVINGSTON, Secretary.

MALDON (St. James.)—The monthly meeting was held on the 10th November. Present: The Rev. R. G. Chambers, President; Mr. J. Briscoe, Instructor, the two Secretaries and several members. The Treasurer gave a satisfactory account of the funds of the Society, showing a credit of £3 16s. 5½d. The Plymouth Rock cockerel, purchased by the Society to improve the breed of fowls in the district, was reported doing well. Correspondence: A letter from Mr. Barclay re "layers of clay at the bottom of sugar tins" was discussed. It was decided to inform him that such a practice is not known among our members, and that St. James is among those parishes where "temper lime" is used. A resolution from the Lethe Branch re "Co-operation in the holding of an annual Agricultural Convention;" was read and discussed. The meeting was of the opinion that while the ideas were good yet in view of the present economic situation it does not think the time opportune for its participation in such a movement. The Instructor then gave the meeting a very helpful and interesting address. He spoke on (a) Agriculture as a progressive movement; (b) the use of the JOURNALS; (c) Cultivation of manageable plots in preference to longer areas; (d) Systematic cultivation and rotation; (e) Calculating the cost of labour; (f) Sugar cane and cassava. With regard to the JOURNALS, he showed how extracts could be read and profitably discussed at meetings and that members who may not be able to read could have their children read, topically, useful portions for them. Sugar cane, the Instructor said, should have attention, and through co-operation among the members of a community, the making of sugar should be systematically done, in order to prevent the glutting of markets. Season-

able hints were also given and the cultivation of vegetables emphasized. The All Seasons and Succession Cabbage was recommended as superior to Drumhead as they can be grown successfully at any time. The rearing of rabbits was shown to be a splendid accessory to the growing of vegetables and none the less useful for domestic use. In moving a vote of thanks which was carried, Mr. McNab asked for hints on the rearing of rabbits. The Instructor replied as follows:—The coop should be boarded on 3 sides the front and bottom being wired. The food should be left to quail for about 2 hours before feeding. The animals feed more during the night. The young ones should not be touched. The buck should not be with the doe longer than a few hours. The Belgian Hares are good. The members were much interested on the subject and immediately ordered 2 pairs and 1 trio. Mr. E. Foster, an Agent of the Atlantic Fruit Coy., whose subscription was paid, was nominated a member of the Society. Mr. J. W. Chisholm was deputed to visit Mr. A. Jarrett, the 2nd Vice-President, who is ailing. The meeting adjourned until the 10th prox.

J. T. MORRISON, Secretary.

DUANVALE (Trelawny).—The monthly meeting was held on the 15th November, 1915. There were in attendance, the President, Rev. H. Gillies Clerk, in the Chair; the Treasurer, M. Rennie, Esq., Assistant Instructor, the Secretary and ten other members. A long and profitable discussion arose with relation to the planting of the cabbage and corn seeds. Mr. Reed reminded the Instructor of his promise with relation to asking the Entomologist to come this way to study the habits of the Parroquets. Mr. Rennie, after ascertaining from the members the time when the most corn comes in, and when the birds were most troublesome—being about January to February—proposed to ask the Entomologist to visit them about January. The Chairman says that he would like to see the members endeavouring to improve their corn so as to get the best seeds. Mr. Perrin, a visitor, with the permission of the Chair, gave the result of his experience on the planting of corn in his School garden. A long discussion took place on the best means possible of checking the destructive habits of the Parroquets. The meeting was at length of the opinion that they should be removed from the class of protected birds and destroyed. Mr. Rennie stated that it would be good for the Society in common with certain others, to send a gift of oranges to the Contingent in England. After a lengthy and interesting discussion, some members promised to interest themselves in the matter. Mr. Perrin was proposed by the Secretary and accepted as a member of the Society.

L. U. WELSH, Secretary.

PEDRO (St. Anns).—The regular monthly meeting was held on the 15th November, commencing at 8 p.m. There were in attendance: Chas. Douce, Esq., presiding, the Secretaries and about 20 other members and many visitors. The debate on Horse *vs.* Cow proved very interesting and instructive. The basis upon which each started was 45 for 5 years. Proofs, in fact, were brought forward showing that with reasonable attention and care, the returns out of horse would exceed that from cow in these districts even for that limited time. The Authorized Persons were in attendance but they made no report. Mr. M. A. Harvey read an article from the JOURNAL in *re* Birds and Insects. There was evident surprise on the part of many to know that John Crow was not protected by Law. The members were unanimous in their condemnation of the Parroquets and Chicken-Hawk. The former is destructive to corn, as they open the husk and destroy the grains, and the latter a scourge to chickens. The Branch has authorized its Secretary to petition the St. Ann's Parochial Board asking for permission to use the Pedro-Market, now out of use, free, for a limited time, to popularize it. Two new members were enrolled and an interesting agenda fixed for the 20th prox. MILFORD A. HARVEY, Secretary

GIDDY HALL (St. Elizabeth).—A meeting was held on Thursday, November 18th, at 4 p.m. Present: Rev. John Maxwell, President; J. Briscoe, Esq., Instructor, and several other members, the Secretary and one visitor. It was decided to ask Mrs. Maxwell, our late Secretary, to divide up the seeds into small packets which will be distributed free to members at the next meeting. Easter Monday was suggested as a good date for the Show. The President advised members to bring everything to the Show: sweet potatoes, yams, cassava, corn, etc. The Secretary took down the names of twelve members who wished to compete for the Show; he also took down a list of the seeds. It was decided that all who competed must be members of a Branch. The Instructor said that he had told the members of the New Roads Branch about our Show and they had raised 10/- and sent for seeds. The President thanked him on behalf of the Branch. In answer to a question by Mr. Ledger, the Instructor gave directions for preparing a nursery bed, but advised the sowing of cabbage and tomato seeds in boxes. He said he liked when

members asked questions and would be glad if they would always do so, he then knew what they wanted to know. He then gave a most interesting address. He said that if people got no good out of the Society it was their own fault, for when they paid 1/- a year they got the JOURNALS which were worth a great deal more than that and after the Branch had paid the affiliation fee, the balance of the money belonged to the members and could be used to buy seeds to be distributed to members. He also spoke about corn mills and said if the Branch had funds it could not do better than invest in a good one for it would be a great boon to members. James Graham returned his Authorized Person's badge. The meeting was brought to a close with the Benediction.

CHAS. L. STUART, Secretary.

ROCK RIVER (Clarendon).—The regular monthly meeting was held at its usual place on Friday, the 19th November last. Ten members and Mr. Schleifer, the Instructor, were present. After discussing at some length a communication from the General Secretary in *re the non-reading of JOURNALS* by members of Branch Societies, a small Committee, with the Rev. E. V. Donaldson, as Chairman, was formed to select valuable subjects from each month's JOURNAL to be read at each meeting by a member of that committee. The Instructor urged on the members the utility in planting timber and shade trees on their holdings. The former, he showed, will come in "handy" in old age. A list of such trees as are obtainable at Hope Gardens was read to members present. The cultivation and curing of cocoa had its full share of attention. The Instructor asked the members to co-operate in securing suitable curing arrangements so as to be able to show up the best samples of produce which alone can demand the best prices available. The "Co-operative Scheme" launched by the Frankfield Branch was hit upon incidentally just here. Mr. S. Lopez our local merchant will give valuable hints at next meeting on the faults found with the produce offered him and the remedy. A small committee, with Mr. Sydney Lopez as Chairman, is to see after the proper working of our experimental plot. After such a fine season vegetation is literally smiling, the coffee crop is in full swing, and everybody looks hopefully towards the Xmas Season.

J. N. MORRIS, Secretary.

MOCHO (Clarendon).—A special meeting was held in the Mocho Schoolroom on Friday, 19th November, 1915. Present, seven members including President and Secretary. The President in chair as usual. We regret to record that since July we had no meetings, caused by lack of attendance as also wet weather. The first item before the meeting was a motion by Mr. Barnes, that the Secretary get ready for next meeting the names of members who are in good standing, and those who are not. Second, that members to understand clearly that meetings be held as usual in the Mocho Schoolroom and not as rumour says to be removed to another place. Agreed. President moved that amount in hand collected at picnic held in August, being small, be made use of in getting up another (picnic) on Wednesday, 29th December, with a view to raise the amount. President moved: That all forks now in the hands of members be brought in to the Secretary before next meeting. Agreed. Amount of 5/6 in hands of the Secretary collected from G. Stones be handed to Treasurer. Agreed. Moved by Mr. Barnes, seconded by Mr. Alexander Allison, That if funds in hand be found sufficient, another G. Stone be bought for the use of members. Secretary was instructed to notify Treasurer that he is expected to attend at all meetings in future. Meeting adjourned till Friday, 3rd December.

S. AUG. FRANCIS, Secretary.

STURGE TOWN (St. Anns).—The November meeting was full of life. It rained all the week, yet we had a good number of members attending, though they had to come through the rain. Mr. Thomas Lawrence presided. The rat campaign brought 157 tails. Total to date, 268. The presence of the "Authorized Persons" has broken down the petty larceny in the district to nil—anyway, at the present time. The Secretary's letter on Cassareep was read, also whatever information in other sources bearing on the subject was given by the local Secretary. Nicholl's *Tropical Agriculture* gives an idea of it. A paper on Co-operation was read by Mr. A. Brown. It was nicely written. The house was unanimous in giving him a vote of thanks. The financial condition of the Society was next considered. The membership has risen from 35 to 41. The balance for the year ending September 1915, is 16/10 $\frac{3}{4}$ d. Mr. Jno. Williams told us that he has corn now which he has from 1913 crop. Don't shell them, nor remove the covering of the grains; having them in an airy place or even outdoors, in a protected spot from extreme heat and cold, in pairs over a beam, and now and again, see that ants, rats, or weevils do not get at them. Mr. T. Lawrence moved that walking sticks be got for the soldiers. Carried. Mr. Chas. Thomson one of our members of the Society, shall be leaving shortly to join the Jamaica Contingent.

S. JAMES PALMER, Secretary.

WALLINGFORD (St. Mary).—The monthly meeting was held in the Schoolroom on Tuesday, the 23rd November, 1915. There were present: Rev. Mr. Brown, 1st Vice-President, in the Chair, ten other members, and the Treasurer. The Secretary, Mr. Baltimore Grey, having joined the Jamaica Contingent, Mr. T. Percy V. McDaniel was asked to fill the position, which he accepted. Mr. J. H. Williamson was also asked, and promised to act as Assistant Secretary. Letter from the Secretary of the Parent Society (re JOURNAL) was read and approved. The general rules were then read and filled in. The Secretary then read from September JOURNAL, page 363, "Shelter for Stock," which was then discussed, and Mr. T. H. Grey suggested that a bamboo flooring under the shelter was also a great help to goats, etc. The Treasurer presented his report. T. PERCY V. MCDANIEL, Secretary.

WINDSOR FORREST (St. Mary).—A meeting was held in the Church Hall on Thursday evening, of the 10th October, 1915. Present: Wm. Cradwick, Esq., Agricultural Instructor; Mr. Armstrong of the Secretariat, Kingston; Miss Macnee; Lieutenant A. S. Allan; the Secretary, and fourteen other members. Lieut. Allan, in the absence of the President, filled the vacancy. After the reading and confirmation of the minutes, Miss Macnee presented letters from the Custos, Hon. Sir John Pringle and the Mayor of Kingston to the President, the Rev. James Macnee, J.P., requesting his and the people's co-operation in the raising of a sum for the Red Cross Society. This the members heartily approved of. A telegram from the President inviting members to meet at the Hall on Monday evening, 18th instant, for special meeting on recruiting was read and approved of by them. Letters re the getting of potato slips from the prison farm were read. It has been decided to try the slips, although members are of opinion that they may not be adaptable to these high lands. A petition from Messrs. Lowe and Foote, of Woodside, inviting members' co-operation in holding produce till a suitable price may be obtained, was inadvised, as it was thought these are not the days for pressing for high prices. Mr. Went moved, and it was unanimously carried, that a suitable amount be sent from the funds of this Society to the Red Cross Fund. The Cocoa cultivation competition was exhaustively dealt with by the Instructor, who promised Monday, the 25th, for a demonstration in any members' cultivation. On the invitation of the Chairman, Mr. Armstrong delivered an able address, dealing with the two varieties of potato slips grown and obtainable at the prison farm, proving to the members that they are the best grown there, and advised cultivation of them. Congratulated the Authorized Persons in the absence of praedial larceny in the district there being no reports from them of an arrest for over two months. Suggested getting a corn mill from the Parent Society, when they may be had from £1 to £5 each, as the members are now clamouring for one. Pressed members to join the War Contingent if eligible. To send up walking sticks for the wounded soldiers, which is as little as any one can do. To enter for the Cocoa Competition, as there is nothing to be lost by it, but rather a gain, as the fields by that extra cultivation will give an increase of bearing, and a greater zest for future competitions. As Mr. Wynter, the Treasurer, is off the Island, Mr. H. A. White was voted to the position. It is hoped that at a next regular meeting a subscription be made towards the war fund. The meeting terminated. H. J. CROOKS, Secretary.

MT. HERMAN (Portland).—The regular monthly meeting was held on the 21st October, 1915. There were present: Messrs. H. G. Blake, President; E. A. Gunter, Asst. Agricultural Instructor, The Treasurer, the Secretary and seventeen members. Mr. David Anderson became a new member. The Instructor spoke on the proposed Cocoa Competition Scheme for 1916, of which the members of the Society were greatly interested. A Committee was appointed to work up the scheme. Two papers were read by members of the Society, which greatly enhanced the interest of the meeting. The first paper was read by Mr. Alfred Tucker on fowl-rearing. The second by Mr. Alfred Moore on the curing of coffee. Both papers were full of useful information. The Instructor gave useful and interesting hints on fowl-rearing as arising out of Mr. Tucker's paper, especially in keeping them in ketops. He also spoke on coffee-curing as set forth in Mr. Moore's paper. The Instructor, after giving his usual agricultural hints on banana and cocoa cultivation, proposed to demonstrate at Mr. Alfred Tucker's field on Tuesday, 2nd November, and at Mr. Isaac Ivey's field on Thursday, 18th November. The next meeting was fixed for Thursday, 18th November, at 5 o'clock p.m., when Mr. Shadrack Forrester will read a paper on pig-rearing, Mr. H. S. Blake on agriculture generally. Mr. John Ivey on the cultivation of yams. Members were asked to fulfil their obligations before the next meeting. F. GREENWICH MCGRATH, Secretary.

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